Industrial Equipment News

IEN

FOUNDED 1933

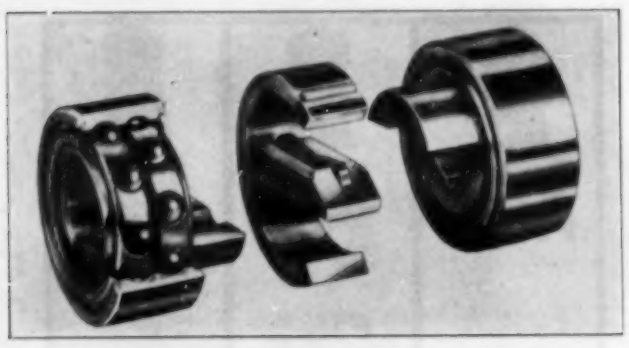
ORIGINAL REPORTER OF *What's New* IN EQUIPMENT, PARTS, MATERIALS

AFFILIATED WITH THOMAS REGISTER OF AMERICAN MANUFACTURERS

If you write maker identify as **IEN - 9440**

Drive - Torque transmitter locks against action on output side

Source: AHLBERG BEARING CO.
3025 W. 47th St., Dept. IEN, Chicago 32, Ill.



Illustrated specifications upon request

Smith Nobak Device is a new assembly of ball bearing input and output members on the two sides of a stationary ring that encloses a spring equipped cross bar or shoe. The center ring is held stationary by a pin type key. Drive is transmitted from the input to the output side by the shoe and projecting shoulders on the inner bearing races of the two outer members.

The shoe rides free when it is acted upon in either direction from the input side. It locks when reverse torque is applied from the output side. Thus the unit can be assembled into a vehicle steering mechanism so the operator can steer to the right or left. If any forces are exerted which would tend to turn the steering wheel against his will the device will lock and prevent this reverse torque or kick back from taking effect. At the same time, the device leaves the driving member free to transmit torque, during the time that a reverse torque is applied, as well as during the time that there is none.

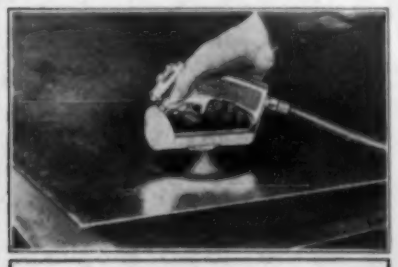
The ball bearings are factory lubricated and sealed so they require no attention in most applications. The unit is available in a range of sizes with nominal diameter on the input and output sides at $1\frac{3}{16}$ to $7\frac{7}{8}$ in. and bore at $\frac{5}{16}$ to $2\frac{1}{2}$ inches.

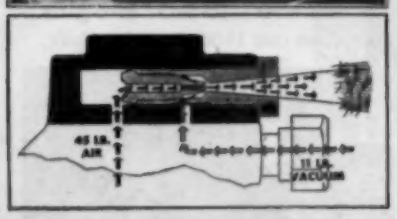
The driving and driven members range from $\frac{11}{16}$ to $2\frac{7}{8}$ in. in width. The central locking member measures $\frac{5}{16}$ to $2\frac{1}{2}$ inches. It ranges from about $1\frac{1}{4}$ to 8 in. over its pin key.

If you write maker identify as **IEN - 9441**

Handling - Vacuum sheet lifter creates the vacuum by venturi action

Source: F. J. LITTELL MACHINE CO.
4127 N. Ravenswood Ave., Dept. IEN, Chicago 13, Ill.





Catalog Section 9J

Pres-Vac trade names a new sheet lifter consisting of a 5-in. neoprene vacuum cup and aluminum handle containing an operating trigger and a venturi nozzle. The handle connects through a 96-in. length of hose and a pressure regulator, both supplied with the lifter, to a shop air line. The regulator is set so venturi air pressure is 45 lb.

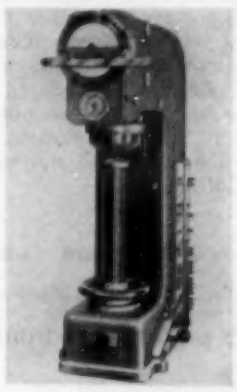
Pressing the trigger admits the air and sets up vacuum equivalent to an 11-lb. lift per sq. in. of cup, or about 215 pounds. This vacuum is maintained as long as the trgger is held in depressed position. The load will be released as soon as the trigger is released. The lifter is particularly suited to handle oil coated sheets of metal.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 80

If you write maker identify as **IEN - 9442**

Testing - Hardness instrument makes, projects, measures indentation

Source: GRIES INDUSTRIES INC.
Dept. IEN, New Rochelle, N. Y.



Bulletin DIA-2

Push button selection of the load to be applied and optical projection and measurement of the indentation image are features of this new line of **Reflex** hardness testing instruments. Vickers, Knoop, Grodzinski, Brinell and, optionally, Rockwell tests can be made.

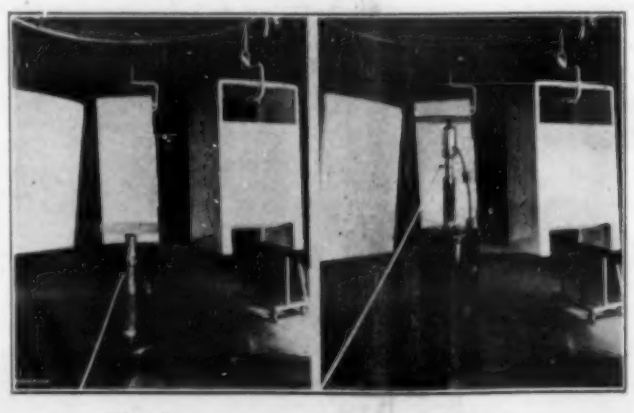
Type DIA-2 provides for selection of 15 test loads between 1 and 250 kilograms. Type DIA-GR-1B covers 10 test loads between 1 and 120 kilograms. Both employ push button controls. A third instrument, Type MICRO, covers test load from 10 gm. to 3,000 grams.

Weight blocks remain permanently in place, the operator pressing a push button to select the desired test load. Faulty combinations of the weight blocks are not possible. The impression produced by the diamond pyramid, diamond double cone or Brinell ball is projected to a ground glass screen with magnification at 20x, 70x or 140x. Measurement of the projected image is made on an engraved scale mounted on an universal holder. Types DIA-2 and DIA-GR-1B provide clearances of 6 in. horizontally and 12 in. vertically.

If you write maker identify as **IEN - 9443**

Painting - Electrostatic equipment needs no air, generates no over-spray

Source: RANSBURG ELECTRO-COATING CORP.
Barth at Sanders, Dept. IEN, Indianapolis 7, Ind.



Disc down **Disc up**

A new atomizer, disc type reciprocating design, has been developed for use with the No. 2 process of electrostatic spray painting, previously described IEN-8559-51. Work suspended on a conveyor makes a circular loop in the electrostatic spray area. The disc type atomizer is mounted at the center of this area to move up and down vertically as well as to "spin" the paint supplied to it.

High dc. voltage is applied on the disc to establish an electrostatic field between it and the work on the ground conveyor. This action atomizes the paint into a fine spray and electrostatically attracts it to the surrounding work which can receive as many as twenty-five 60-in. vertical "strokes" in passage around the painting area.

Representative work that has been tested successfully in the company's laboratories includes tables, chairs, water heater jackets, automobile hoods and fenders, window trim parts, wire screens, air filters, furnace panels and grills, ventilating fans, washing machines, dryers, valves, shower stalls, toy wagons, fluorescent fixtures, steel drums, discs.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 80

SEPTEMBER, 1954

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FOR ROUTING to others in your plant interested in product information

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- ☐ *Purchasing, Mr.* .....
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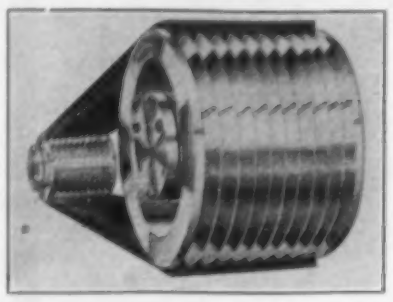
If you write maker identify as **IEN - 9444**

Drive - Multiple rib V-belt distributes load over grooved sheaves

Source: BROWNING MFG. COMPANY
16 Chester St., Dept. IEN, Maysville, Ky.



Bulletin Form 2098

The company announces availability of its Browning Poly-V drive in which a single endless rubber fabric reinforced belt with multiple parallel ribs rides in multiple grooves on driving and driven sheaves. The new belt eliminates the need to match individual V-belts for a multiple drive. It provides, in a given width, approximately 50 per cent higher power rating than a multiple V-belt assembly of equivalent size belts.

The new design is available in two sections for applications equivalent to A, B and C belts and C, D and E belts.

If you write maker identify as **IEN - 9445**

Cutting - Titanium carbide with nickel and molybdenum carbide

Source: FIRTH-STERLING INCORPORATED
3113 Forbes St., Dept. IEN, Pittsburgh 30, Pa.

Available in limited quantity

The company announces development of a new carbide cutting material characterized by high wear resistance and ability to minimize cratering action resulting from contact with steel chips. Tool life is excellent on steady finishing cuts, particularly when high speeds and fine feeds are employed in machining hard abrasive steels. The new carbide minimizes heating when it is cutting steel dry. Titanium carbide is employed as the base with nickel as the binder and molybdenum carbide as the alloy carbide addition.

If you write maker identify as **IEN - 9446**

Marking - Masking ink covers up markings previously made

Source: REYNOLDS INK INC.
4500 Euclid Ave., Dept. IEN, Cleveland 3, Ohio

Old marks disappear

Stencil-Kover trade names a new tan colored ink packaged in a pressure container to cover up marking errors on new containers or to remove old markings from used containers so they can be used again. Application can be made on crates, boxes, cartons, drums. The ink dries rapidly to permit new stenciling or marking within about 1½ minutes. The liquid will cover stencils, crayon marks, printing and labels. The container holds 12 ounces. List price is about $2 each. Twelve units are packed in a shipping case.

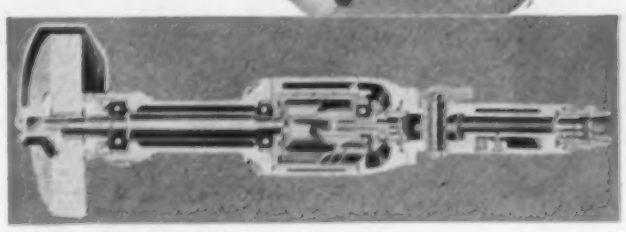
All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as **IEN - 9447**

Do you know about the new power jacks? The remote controlled hydraulic jacks? Jacks that lower loads automatically, safely and quickly? Do you know how to select the right jack for the job at hand? How to instruct workmen on the safe use of jacks and how to keep jacks in good working order? Duff-Norton, the world's oldest and largest manufacturer of all types of lifting jacks for every industrial use, has just published a new 40-page, illustrated jack manual—the most complete encyclopedia on the subject of lifting jacks ever attempted. This new manual contains complete specifications on more than 300 different types and sizes of ratchet, screw, and hydraulic jacks from 3 to 100 ton capacities, both manual and power operated. It contains 40 pages of useful information that will enable you to get lifting, lowering, pushing and pulling jobs done faster, safer, at lower cost. Write today for your copy of Bulletin 204-M. It's yours for the asking! **The Duff-Norton Manufacturing Co. P. O. Box 1889, Pittsburgh 30, Pa. Canadian plant—Toronto 6, Ontario.**

If you write maker identify as **IEN - 9448**

With New Departures— ROTOR GIVES UPKEEP THE "AIR"!

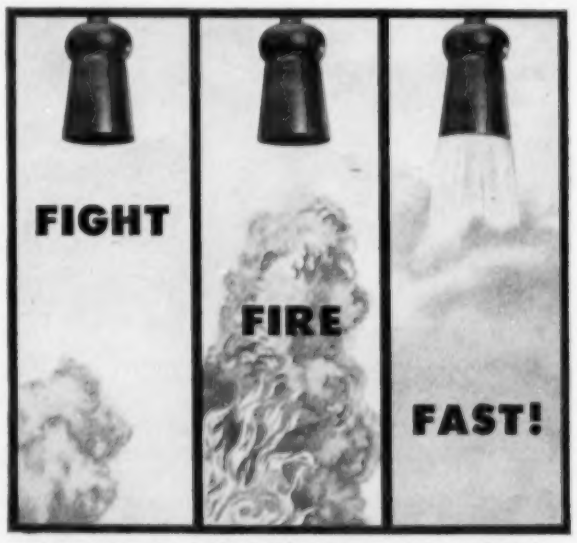


Holding the line against downtime! Three New Departures in the Rotor Tool air grinder need no adjustment . . . cut lubrication requirements to virtually zero.
These New Departures are double-shielded from foreign matter . . . have high radial and thrust capacity . . . withstand shocks of hard use. And cool-running New Departure **ball** bearings maintain alignment, assure maximum power.

Build advantages into your product. Talk with your New Departure engineer — *today!*

NEW DEPARTURE
BALL BEARINGS

If you write maker identify as **IEN - 9449**



WITH A KIDDE CO_2 SYSTEM!

Let fire get a foothold, and a going concern is *gone*. Don't risk it. Install a Kidde Automatic CO_2 Fire Extinguishing System, and fire won't stand a chance.
A Kidde System goes into action immediately – releases clouds of CO_2 over the blaze, smothers fire almost as soon as it starts. And CO_2 leaves no mess. It puts out fire, then vanishes.
Protect flammable liquids, dip tanks, spray booths with a Kidde System. Let Kidde guard record vaults, machinery and electrical equipment.
And for on-the-spot protection, get Kidde portables. You just aim the horn, pull the trigger, and *swoosh!* No more fire.
Don't wait 'til it's too late – Contact Kidde today.

Kidde Walter Kidde & Company, Inc.
936 Main Street
Belleville 9, New Jersey

If you write maker identify as **IEN - 9450**

The ABC of low-cost metal joining

Brazing with the low-temperature silver alloys EASY-FLO and SIL-FOS, supplemented by a fast heating method, and a set-up that promotes fast handling – that's the ABC of economical brazing. Here's an example – brazing one-piece steel pulleys onto shafts.

Pulleys and shafts are assembled with an EASY-FLO ring preplaced on each, and induction brazed automatically. Heating time – 2 assemblies – 25 secs. Two girls turn out 1500 per 8-hr. shift.

GET BULLETIN 20
It gives the amazing EASY-FLO facts plus valuable pointers on fast, low-cost production brazing. Write for a copy today.

HANDY & HARMAN 82 Fulton St., New York 38, N. Y.
Distributors in Principal Cities. In Canada: Handy & Harman of Canada Ltd., Toronto

If you write maker identify as IEN - 9451

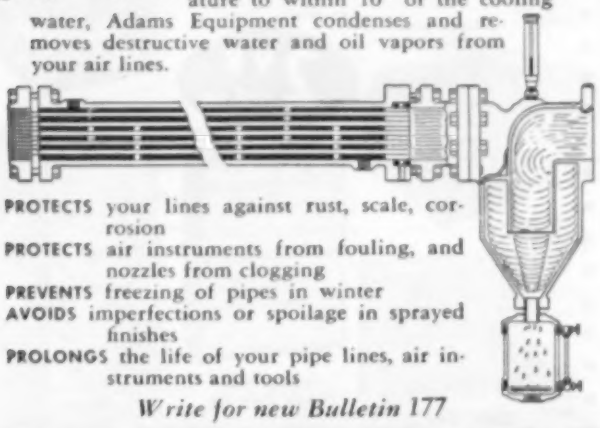
You Can be Sure of Clean Dry Air for your Compressed Air Tools

3500 Gallons

1 YEAR'S water extraction from air lines equipped with Adams Aftercooler and Cyclone Separator.

with ADAMS Aftercooler and Cyclone Separator

● Reducing compressed air temperature to within 10° of the cooling water, Adams Equipment condenses and removes destructive water and oil vapors from your air lines.



PROTECTS your lines against rust, scale, corrosion
PROTECTS air instruments from fouling, and nozzles from clogging
PREVENTS freezing of pipes in winter
AVOIDS imperfections or spoilage in sprayed finishes
PROLONGS the life of your pipe lines, air instruments and tools

Write for new Bulletin 177

R.P. ADAMS CO., INC. 219 E. PARK DRIVE BUFFALO 17, N. Y.

If you write maker identify as IEN - 9452

Do it cleaner...

Do it faster!

with ANACONDA'S new

SILVER DUTRAX*

nonmetallic-sheathed cable

Silver Dutrax has a revolutionary new finish. It won't become sticky...won't flake or peel. It's the cleanest, fastest-working cable today. See your Anaconda Sales Office for samples. *Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.*

*Reg. U. S. Pat. Off.

54456

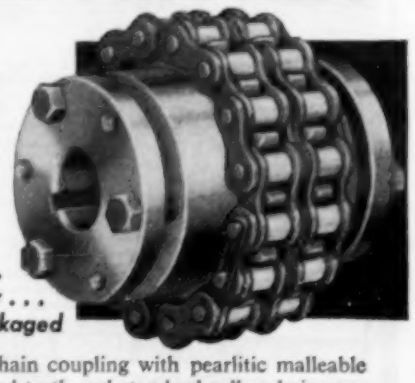
the right cable for the job

ANACONDA®
WIRE AND CABLE

If you write maker identify as IEN - 9453

Browning's NEW CHAIN COUPLING

STRONG AS THE SHAFT ITSELF!



No reboring . . . simple assembly . . . individually packaged

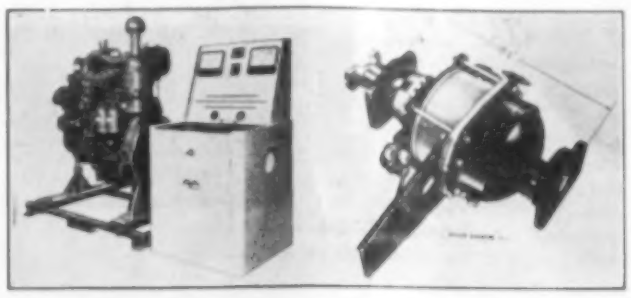
Browning's chain coupling with pearlitic malleable sprockets, hardened teeth and standard roller chain provides maximum capacity and longer life. Employs same split taper compression bushing used in other Browning power transmission products. Strong as the shaft itself! Choice of 9 stock sizes, 38 bores from your Browning distributor. Ask him or write us for Catalog V169.

Browning MANUFACTURING COMPANY MAYSVILLE, KENTUCKY

If you write maker identify as IEN - 9454

Testing - Dynamometer to absorb and measure rotary power

Source: CLAYTON MFG. COMPANY
Box 550, Dept. IEN, El Monte, Calif.



Dynamometer **The hydraulic brake**

Engines, motors, turbines are representative equipment that can be tested for power capacity at various speeds by this new Series 8 dynamometer. The equipment is available in a Model 8-200CE with rating at 200 hp. in a speed range between 2,100 and 4,000 rpm. It is also made in a Model 8-125CE rating 125 hp. at 1,310 to 4,000 rpm. Equipment of any smaller capacity than these maximum figures can be tested.

Assembly is in a rectangular housing measuring 31 by 31 by 60 in. over the top of the instrument panel. The drive shaft center line is 27 in. above the floor. The engine or other prime mover is mounted on a stand at one side of the housing as shown in the illustration. The company is prepared to supply stands for specified equipment.

The instruments include a direct reading electric horsepower meter with a dual range reading to 100 and to 200 hp., an electric tachometer with a dual range to 2,000 and to 4,000 rpm., a dynamometer temperature gage and a water pressure gage.

Power is absorbed by a hydraulic brake and resulting heat is dissipated by a water cooling circuit. The fluid in the brake mechanism is varied in quantity to determine the amount of power to be absorbed by operating a pair of valves. The unit can be completely charged for maximum braking effort or the charge can be allowed to enter or leave gradually for smooth gentle and continuous variation.

If you write maker identify as IEN - 9455

Storing - Sectional bins to hold small parts, tools, materials

Source: STACKBIN CORPORATION
1077 Main St., Dept. IEN, Pawtucket, R. I.

2 to 8 openings

O-Section designates a recent addition to the company's line of sectional stackbins. It is shown with its eight individual bins in the top three tiers of the illustration. It is used in combination with other sectional stackbins. The user can vary the number and size of openings in the storage installation to fit his own needs. Since each section is built on a basic design, the individual assemblies can be set up or rearranged quickly without need for tools, one section stacking firmly upon another in the manner illustrated.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9456

SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO WELDING CURTAINS

A SOUND INVESTMENT FOR PROTECTION OF PERSONNEL

Workers and passers-by are protected from harmful rays given off by welding operations. Also serve as a protective shield against flying chips and scale. Made of special flameproof and waterproof canvas —or asbestos—complete with eyelets for suspending on rod or pipe support.

WRITE FOR BULLETIN NO. 43

IPCO Safety Equipment for all Industries
INDUSTRIAL PRODUCTS COMPANY
2801 N. FOURTH STREET • PHILADELPHIA 33, PA.

If you write maker identify as IEN - 9457

LUBRICATION ECONOMY

"LUBRIPLATE improves Machine Operation"

The PACKAGE MACHINERY COMPANY of Springfield, Mass. writes "To assure the use of LUBRIPLATE Lubricants for re-lubrication of our machines in use, we place tags on them before shipment; thus the purchasers of these machines know the LUBRIPLATE product to use for each application."

1. LUBRIPLATE reduces friction and wear

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3. LUBRIPLATE is economical to use

Write today for case histories of savings made through the use of LUBRIPLATE in your industry.

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Fiske Brothers Refining Co.
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The Different LUBRICANT!

DEALERS EVERYWHERE, consult your Classified Telephone Book

If you write maker identify as IEN - 9458

CASTELL push button LOCKTITE lead holder has PERFECT BALANCE

Perfect balance makes Push Button CASTELL LOCKTITE Holder the king of its class.

Exclusive collet holds lead in **bull dog grip,** preventing slipping or turning.

No graphite dust stains your fingers —because with one-hand push-button action you extend and retract the lead. *No need to touch graphite.* Comfortable "wood-pencil" feel—not metallic.

Equipped with easily-replaced clutch, giving your LOCKTITE indefinite life.

Imported CASTELL 9030 Lead inserted in your LOCKTITE Holder gives you the combination for brilliant results on your drawing board. Ask your Dealer for both — LOCKTITE Holder and Imported CASTELL 9030 Lead in 19 degrees, 7B to 10H.

AW. FABER-CASTELL PENCIL COMPANY, INC., NEWARK 3, N. J.

If you write maker identify as IEN - 9459

The Metals Handbook

1332 Large pages
1752 Illustrations
1057 Tables
803 Articles
1,620,000 Words
40,000 Copies in use

Here is a book without a competitor . . . a book 25 years in the making. The current, 7th edition of the Metals Handbook was compiled and written by 68 committees of the American Society for Metals; more than 500 metals engineers were hand picked by the Society as the top experts, the men best qualified to write the most authoritative possible reference book on metals, metal properties, fabrication and uses. The book they wrote is the Metals Handbook. It is divided into 37 principal sections, and contains 803 separate articles and data sheets on metals, metal shopping, forming, heat treating, welding, machining foundry work, cleaning, finishing, testing, inspection, control and research techniques. All metals, all processes are included. The 64-page index and 4-page section on how to use the book make it easy for any reader to find what he wants. Over 40,000 copies of this edition are now in use by engineers, production men, executives, purchasing agents, and others. Order your copy today by returning the coupon below. Price is $15.00.

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Address .....
City ..... Zone ..... State .....
☐ $15.00 enclosed ☐ Bill me

If you write maker identify as IEN - 9460

What do you know about the *Moly-sulfide* LUBRICANT?
A LITTLE DOES A LOT

You may have heard about a highly successful solid-film lubricant which is giving remarkable results in the shop and in the field.

In one 40-page booklet we have collected 154 detailed case-histories describing how difficult lubrication problems have been overcome by molybdenum sulfide. If you wish to be up to date about this solid-film lubricant, write now on your business letterhead for a free copy.

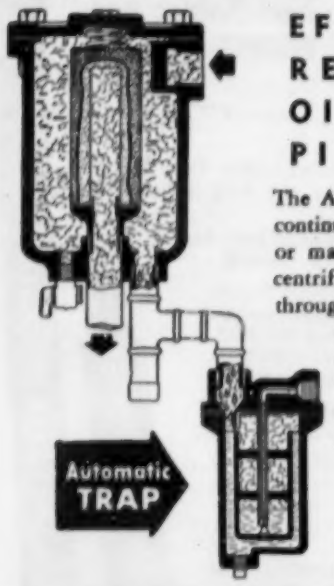
THE LUBRICANT OF MANY USES

Moly-sulfide
A LITTLE DOES A LOT
SEND FOR THIS FREE BOOKLET TODAY

Climax Molybdenum Company
500 Fifth Avenue · New York City 36 · N.Y.

If you write maker identify as IEN - 9461

Poro-Stone Filtration
FOR COMPRESSED AIR



EFFICIENTLY REMOVES OIL, WATER PIPE SCALE

The Adams *Poro-Stone Filter gives* continuous service without attention or maintenance expense. Efficient centrifugal separation *plus* diffusion through Poro-Stone, removes contamination completely without pressure loss. Automatic Trap eliminates attention and assures continuous and efficient filter operations.

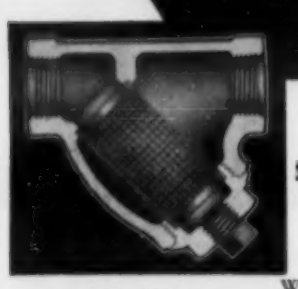
Write for complete data Bulletin 177

R. P. ADAMS CO., Inc.
219 E. Park Drive • Buffalo 17, N. Y.

ADAMS *Poro-Stone* AIR FILTER

If you write maker identify as IEN - 9462

don't let dirt damage your piping!



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SEDIMENT SEPARATORS
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Iron Body and Cast Steel
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Working Pressures
Up to 600 pounds steam. Iron patterns in sizes up to 12-in. Steel patterns to 1½-in. Screwed or Flanged Ends.

Why take chances with valuable and sensitive flow control equipment? Put Crane Sediment Separators in your pipe lines and be sure dirt, grit and scale can't do damage.

Simple in design; rugged in construction. Have extra large screening area assuring free fluid flow with minimum pressure loss. Effectively trap all foreign matter. Periodic blowing out is only maintenance required. Get full details from your Crane Catalog or call your Crane Representative.

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NBP

VOL. 22 SEPTEMBER, 1954 No. 9

Join the Game

Everyone can get into it. No special starting knowledge is required. You can learn as you go by applying just ordinary horse sense in your search for opportunities and facilities to improve operating conditions. Don't let the big word frighten you away. It's just another word to define an industrial movement that has been under way for a long long time. We're talking automation.

Everyone can be as much of an automation expert as he wishes. You can go all of the way from the simplest subjects to the most complicated mechanisms, controls and computers. Every product manufacturer, as well as user, can get in the game by showing the part his products play in automation because every product does play a part, bar none.

Popular concept is one of big words, weird names, multi-function mechanisms, mysterious instruments. Actually most of the words and names have been coined to fit the occasion. The mechanisms and the instruments are neither complicated nor mysterious if you take them apart and note their simple components. Actually, real automation, the practical kind, will be continuing effort to recognize, locate and eliminate operation road blocks by applying available facilities, by watching for the newer facilities and applying them in place of the older ones, as soon as they prove their practical worth.

Most important consideration is to start simply, to avoid swamping under the digital computers and the transistors and transducers and the supersonic equipment. Go carefully until you are ready for them after automating manually for an experience interval.

Let's start really simple, just for instance. Let's look at an operation road block so simple it is easily overlooked, so prevalent that you are bound to find it, in one form or another in every plant, so persistently penetrating that it probably is the most common of all automation stoppers—just plain dirt.

A metal working plant installed a hundred unit heaters. Promptly the motor driven fans drew in dirt and oil mist with the shop air. The heaters delivered the air and retained the dirt. It cost the company about $75 per unit to clean them. The cleaning interval was every three months. The job required dismantling each heater. It involved interference with production. Then the plant engineers did some automationeering.

They installed two filter panels on a V-shaped frame back of the motor driven fan on each unit, similar to the one previously described IEN-6178-53. Now the panels are removed and replaced in a minute or two when they become loaded. The heaters have been partially automated. The job was paid for in less than a year.

Let's go automating together. You find the road blocks in your plant and look in IEN for things to clear them out. If you do not find just what you believe will do the job then let us know. We will make suggestions based on our own records of thousands of things to do things with.

W. E. Irish

If you write maker identify as IEN - 9463

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Showing 750 Different CABINET COMBINATIONS
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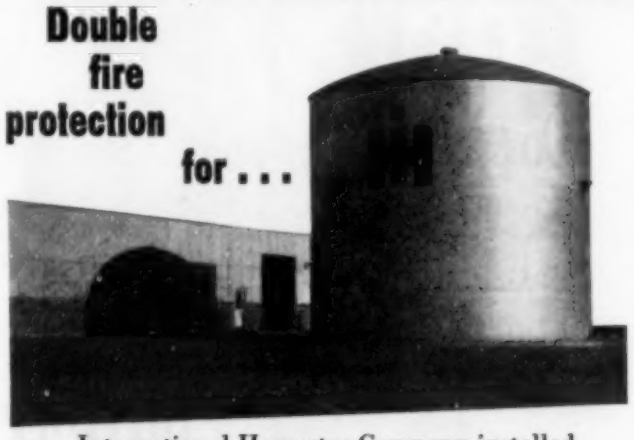
If you write maker identify as IEN - 9464

Double fire protection for . . .



International Harvester Company installed a 250,000-gal. suction tank shown above to provide the primary water supply and a 100,000-gal. Watersphere® to provide the secondary water supply for fire protection at its Broadview, Illinois plant.

To improve your plant fire defenses, write our nearest office for estimates or quotations on a Horton® elevated tank, Watersphere or suction tank.

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SAVE UP TO 85% ON GOVERNMENT SURPLUS

MAGNI-FOCUSER
Has fine ground lenses of optical glass. Neutralizes eye strain from close work. Binocular design gives third dimensional vision. Allows freedom of both hands. Wear over glasses. Plastic frame with adjustable headband.
SIZES: 20" focal lgth. 1½ power – 14" focal lgth., 1¾ power; 10" focal lgth., 2½ power; 8" focal lgth., 2¾ power . . . . . price each ONLY 10.50

HYDRAULIC EQUIPMENT
We stock over 100,000 Hydraulic Cylinders in 106 different types and sizes. These can be adapted wherever transmission power is needed to push, pull, hoist, mould or drive, etc.

SPECIAL
Gives 20,000 lb. thrust using 1500 PSI line pressure as obtained from our hydraulic pumps. Will produce up to 40,000 lb. thrust with 3000 PSI. Can also be used on a low pressure air system. Has 4" bore; 18" stroke; 20½" long. Ideal for shop.
Part No. 79 NEW 43.95 29.95

OTC TOOLS
See our complete line. Pullers for Gears, Bearings, Wheels, Pulleys, Bushings, Shafts, etc.

NEW 10 TON HYDRAULIC PRESS
Use this Press in the Shop or take it with you on the job. Frame is 4" welded channel iron. Has 4½" stroke, 2½" diam. ram. Valve operates piston in both directions. Adjustable platform. Positive power Hand Pump with handle. 3000 PSI pressure gauge.
SIZE: 68" high 27" wide 29" base
129.00

HYDRAULIC HAND PUMP
Operating pressure 1500 PSI. Cap., 1.5 cu. in per complete cycle . . . 12.75

HYDRAULIC ACCUMULATORS
A-28 FLOATING PISTON TYPE – 4"x 18" Built to stand 2,000 PSI 12.75
A-5 VICKERS – 10" dia. Bell type. Built to stand 2000 P.S.I. 24.50
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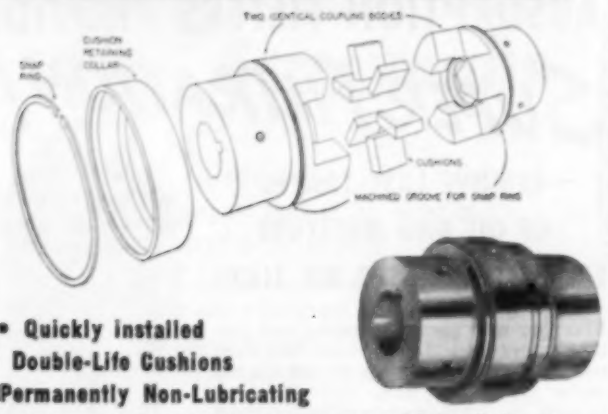
If you write maker identify as IEN - 9466

LOVEJOY FLEXIBLE COUPLINGS



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- Double-Life Cushions
- Permanently Non-Lubricating

- Lovejoy's uncomplicated design permits easy, quick installation or removal. Load cushions are in plain sight at all times for rapid inspection and can be removed without tearing down the coupling.
- One-half the cushions act as idlers during operation, except on reversing loads. In non-reversing operation, the cushions can be reversed to double their service life.
- Lovejoy Couplings never require lubrication.
- Lovejoy manufactures a complete range of flexible couplings from fractional hp. at up to 1750 rpm. to over 2400 hp. at 1200 rpm. and higher. Get full information on this "maintenance-free" line, including catalog with complete specifications and operating capacities.

LOVEJOY FLEXIBLE COUPLING CO.
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Also Mfrs. of Universal Joints, Variable Speed Pulleys and Transmissions

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Shipped from Stock. Your "special" wood screw or stove bolt may be standard in nearly two miles of stock shelf space and more than 500 million bulk screws at Southern Screw Company to insure prompt shipment.

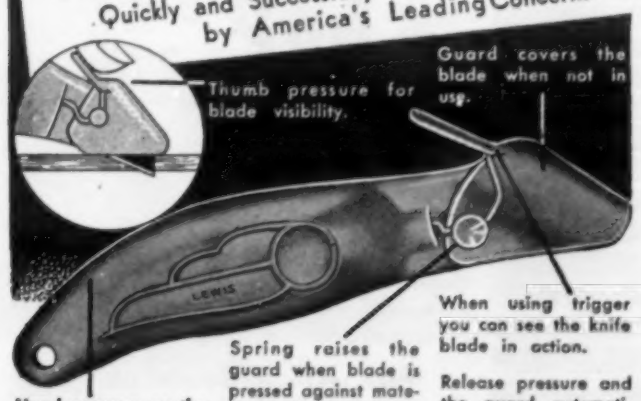
Write us your special needs. Free samples and wood screw catalogue upon request. Box 1360-E.

SOUTHERN SCREW COMPANY
STATEVILLE, NORTH CAROLINA WOOD SCREWS • STOVE BOLTS
FACTORY WAREHOUSES: NEW YORK, N. Y. CHICAGO, ILL. LOS ANGELES, CALIF. DALLAS, TEX.

If you write maker identify as IEN - 9468

NEW! LEWIS AUTOMATIC TRIGGER ACTION SAFETY KNIFE

Quickly and Successfully Adopted for Use by America's Leading Concerns



No other cutting tool like it. Eliminates the hazards of exposed cutting blades. You must operate it to appreciate its swift and sharp cutting . . . always automatically ready for use. Trigger action gives full blade visibility with safety.

Retail Price $1.50

FLASH BOX OPENER CO., Inc.
52 W. Houston St. • New York 12, N. Y.

If you write maker identify as IEN - 9469

Control - Switch assembly opens circuit on transmission failure

Source: H. R. WILLIAMS MILL SUPPLY CO.
1320 Main St., Dept. IEN, Kansas City 5, Mo.

$49.50 and $53.50

Cylindrical housing, containing a pivoted vane secured to an external counter-weighted arm, and a mercury switch, make up the assembly of this new Ziers Motion Control Switch. The housing mounts at the end of a rotating shaft on the driven side of an equipment assembly. The mercury switch mounts in adjacent position where it can be acted upon by the vane actuated arm. Fluid in motion supports the vane and holds the arm away from the switch as long as rotation continues at the driven shaft.

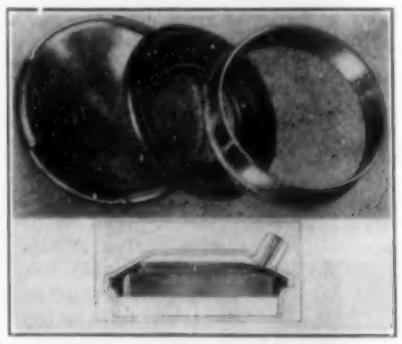
The vane drops and the arm trips the switch on failure in the transmission such as a breaking belt, chain or gear. The switch then opens the control circuit to the driving motor to shut it down. The switch also controls a signal circuit to provide audible or visual indication of the failure.

Application can be made on shafts rotating at speeds from 30 to 500 rpm. in either direction. The mercury switch is enclosed in an explosion proof housing and can be specified in single or double-throw design. Operation can be maintained in a range between minus 40 and plus 400 deg. F. The contacts rate 4 amp. on 110 volts. The vane housing measures 4½ in. in diameter by 5 in. in width. The switch measuring 4¼ by 5¼ by 5 in. in the double-throw design.

If you write maker identify as IEN - 9470

Sealing - Bayonet type closure for application on pressure container

Source: NILSEN MFG. COMPANY
21 North Church, Dept. IEN, Addison, Ill.



Quotations on request

A metal cover, a gasket and a metal bayonet neck, the latter to weld or braze on a container, comprise the three parts of this new closure. The parts are available for any opening size from 1½ in. in diameter and up. Pressure holding capacity is 600 lb. for a 3-in. diameter assembly. The inner edge of the gasket covers the orifice to form a simple sanitary valve.

The two metal parts are usually made of stainless steel but other materials can be specified including plastic. The gasket is made of a rubber resistant to oils and fats. The cover is attached at atmospheric pressure. The gasket seals when internal pressure rises.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 56

If you write maker identify as IEN - 9471

modern industry rolls on SEALMASTER BALL BEARING UNITS

ZONE HARDENING
Latest SEALMASTER engineering advancement is Zone Hardening — a completely automatic heat treating process — assuring greater efficiency and added bearing life.

The impressive list of manufacturers standardizing on SEALMASTER Bearing Units reads like a "who's who" of American industry. SEALMASTER engineers in close cooperation with manufacturers have made many worthwhile contributions to the efficiency of both products and manufacturing processes. It will always be a SEALMASTER policy to assist manufacturers in their bearing problems. Write for Catalog 845.

BEARING DIVISION
STEPHENS-ADAMSON MFG. CO.
231 RIDGEWAY AVENUE
AURORA, ILLINOIS

SEALMASTER

If you write maker identify as IEN - 9472

Do You USE or NEED INFRARED HEAT?

THESE USEFUL DATA SHEETS Show you how to SAVE TIME & MONEY with CHROMALOX Electric RADIANT HEATERS

TELL US your application problems and we'll send you valuable information which may lead to improved production at decreased costs on the jobs for which you use or need infrared heat in your plant.

EDWIN L. WIEGAND CO., Industrial Div.
7505 Thomas Boulevard, Pittsburgh 8, Pa.
I need infrared heat for _____
Send me application file on above.
Name _____
Company _____
Street _____
City _____ Zone _____
State _____ 19-21

See Chromalox Case Book Advertisement, Page 11

CHROMALOX
ELECTRIC HEAT FOR MODERN INDUSTRY

If you write maker identify as IEN - 9473

Mark Gears... CLEARLY AND EFFICIENTLY WITH MODEL GH-2 Press Style GEAR MARKER

Legible—clear-cut marking of any size gear, with any amount of lettering—is possible with this press style type holder. Furnished with any size or style shank to suit your press. Features *Quick Change* steel type.

Write for new Catalog 100 today!

Mecco SAFETY MARKING TOOLS
M.E.CUNNINGHAM CO.
1039 CHATEAU STREET, PITTSBURGH 33, PA.

If you write maker identify as IEN - 9474

ALLIS-CHALMERS Induction HEATER

Anneals 7000/hr

Allis-Chalmers 20-kw Induction Heater shown with A-C designed and built work handling fixture.

IN PRE-PRODUCTION tests, this Allis-Chalmers Induction Heater annealed steel shell cases at the amazing rate of nearly 2 per second. Not only is this heating unit a fast worker, but it's a clean worker — and a cool one, too! It puts the heat into the metal where it belongs — holds down the ambient.

Whether your problem is annealing, hardening, brazing, or soldering, find out what an Allis-Chalmers Induction Heater can do for you. Standard ratings to 100 kw output are available. Call your nearby Allis-Chalmers office or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-4405

ALLIS-CHALMERS

If you write maker identify as IEN - 9475

Stock arrives on bench-high line. Empty trays return on center line. Filled cartons move to bending, weighing and shipping without leaving conveyor.

METZGAR EQUIPMENT—PLUS METZGAR EXPERIENCE

- GRAVITY-WHEEL, ROLLER
- LIVE ROLLER
- POWER BELT—HORIZONTAL
- FLOOR-TO-FLOOR
- NYLO ROLL
- SWITCHES, CURVES

. . . gives you highest conveyor efficiency and steps up production tempo. Ask for suggestions. No obligation.

METZGAR CONVEYOR CO.

417 Douglas, N. W.

MFRS. OF WHEEL & ROLLER GRAVITY & LIVE ROLLER CONVEYORS • POWER BELT CONVEYORS • SWITCHES • ACCESSORIES & REEL DOLLIES

GRAND RAPIDS 4, MICH.

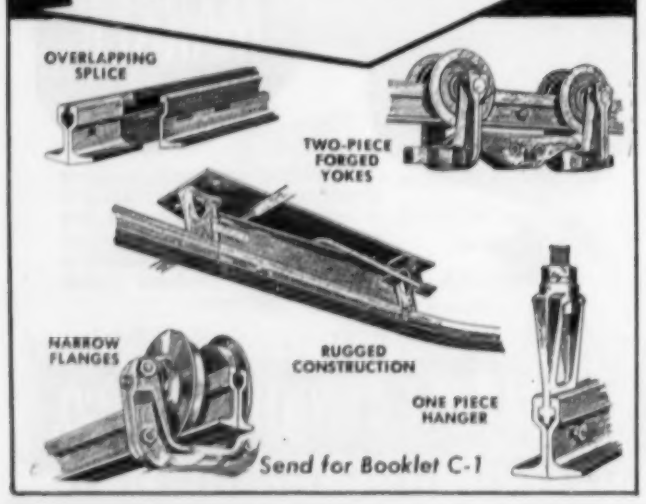
If you write maker identify as IEN - 9476

MONORAIL SYSTEMS FABRICATED TO FIT

American MonoRail is fabricated to fit any handling job. Systems are available for hand or electric operation, including rubber wheel drive with local or remote control providing many automatic features.

AMERICAN MONORAIL CO.

13111 Athens Avenue • Cleveland 7, Ohio



Send for Booklet C-1

If you write maker identify as IEN - 9477

...and Carpenter Stainless Tubing made the difference.

FOR PRODUCTION EQUIPMENT—ten cooling coils like this were made from Carpenter Stainless Tubing at a saving in material of about $1000 because uniform walls permitted a lighter gauge.

GET THESE NEW FACTS!

Just off the press is the new Carpenter Condensed Data File. Packed with facts on properties, corrosion resistance, weights, dimensions. Tells the story of Carpenter quality—Carpenter uniformity. Write for your copy, *today*.

THE CARPENTER STEEL COMPANY
Alloy Tube Division, Union, New Jersey

If you write maker identify as IEN - 9478

Circuit Breaker - Button reset threads into standard plug fuse base

Source: MECHANICAL PRODUCTS INC.
1800 River St., Dept. IEN, Jackson, Mich.

Motor Protector

Six new ratings, 4 to 7½ amp. on 110-volt ac., have been added to the company's Mini-Breaker line, previously described IEN-11193-53. The new units are intended particularly to protect individual equipment in a circuit rather than the overall circuit itself. They are applied in branch circuits to the equipment by threading them into standard cut-out bases in the circuits.

The breaker trips instantly on a "short". It provides a predetermined time lag to handle temporary starting loads and line surges. Service can be restored within 10 sec. after an interruption by pressing in the shock proof reset button in the center of the breaker face after the "fault" condition has been corrected.

If you write maker identify as IEN - 9479

Milling - Carbide tooth cutter in diameter range from 2 to 8 inches

Source: MILLIT INCORPORATED
55 Flint St., Dept. IEN, Rochester 8, N. Y.

For high feed rates

Carbide blades, rectangular in section, are held in tapered body slots by round taper slotted wedges in this new inserted blade shell type milling cutter. Close blade spacing is made possible by the compact design of the round wedge and the rectangular blade. Eight blades can be employed in the 2-in. cutter and thirty blades in the 8-in. unit. The blades are positioned to cut on the narrow side of the rectangular carbide for maximum strength.

The cutter is available with two blade sizes measuring 5/32 by ¼ by 1 in. and ¼ by ⅜ by 1½ inches. List price ranges from $55 to $365.

If you write maker identify as IEN - 9480

Non-magnetic beryllium copper is held on the table of a grinding machine, for surface grinding, by application of double coated Scotch adhesive tape No. 400. The tape is applied on the table and the top facing is removed. Then the work is pressed down on the tape. The tape is made by Minnesota Mining & Mfg. Co., 900 Fauquier St., Dept. IEN, St. Paul 6, Minn.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9481

LOOK HERE for facts on these metals that give **LASTING SERVICE**

AGAINST { TEMPERATURE / CORROSION / FATIGUE

NICKEL® · MONEL® · INCONEL® DURANICKEL® · NIMONICS®

Many of the toughest metal problems have already been solved with these Inco Nickel Alloys. For a broad view of what these alloys can do for you, send for this Inco publication, "Standard Alloys for Special Purposes."

You will see answers to problems of corrosion, high and low temperature, high strength requirements, product purity, electrical properties, wear resistance, heat transfer, workability, spring properties, castings, welding and investment casting. Widely spaced tables list mechanical properties, physical constants and available mill forms.

Refer to this booklet in *Sweet's Catalogue File for Product Designers* or get a personal copy. It is free. Just circle our number on the I.E.N. reply card.

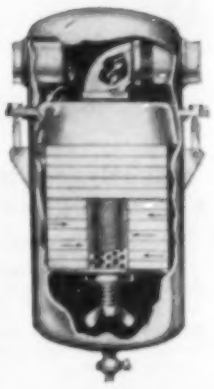
THE INTERNATIONAL NICKEL COMPANY INC.
75 Wall Street New York 5, N. Y.

If you write maker identify as IEN - 9482

STAYNEW

ABSORPTION FILTERS PROVIDE SUPER FILTRATION!

—REMOVE LAST TRACES OF OIL AND MOISTURE FROM COMPRESSED AIR LINES



MODEL AAPH ABSORPTION FILTER

Many manufacturing processes and certain compressed air operated equipment require the removal of condensed oil and water vapors *completely* from the compressed air. In thousands of installations all over the country, Staynew Absorption Filters remove the last traces of oil and moisture and prevent failure of combustion and other pneumatic controls . . . keep maintenance time and cost at a minimum.

For Complete Information, Write Today For Bulletin B-1A.

Representatives in Principal Cities

DOLLINGER STAYNEW FILTERS

DOLLINGER CORPORATION
3 Centre Pk., Rochester 3, N. Y.

ALL TYPES OF FILTERS FOR EVERY INDUSTRIAL NEED

If you write maker identify as IEN - 9483

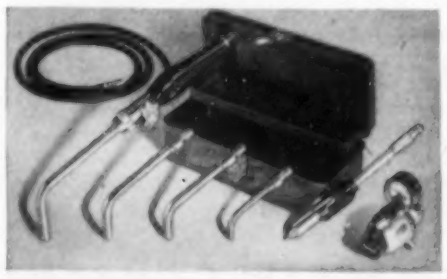
Fast · Clean · Economical

Prest-O-Lite 5-in-1 OUTFIT

Trade-Mark

For All Soldering, Heating, and Brazing Needs

Save time and money on all soldering, heating, and light brazing jobs with this economical, air-acetylene outfit. No pumping, priming, or generating to waste time. No smoke or soot to clean up. One handy kit with a flame for every job. Ask your LINDE jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Dominion Oxygen Company, Toronto.



GET IT FROM YOUR **LINDE** JOBBER

The terms "Linde" and "Prest-O-Lite" are registered trade-marks of Union Carbide and Carbon Corporation.

If you write maker identify as IEN - 9484

NEW

WORKBENCH TOP ... Resinwood

Shop Top 30% "HARDER THAN MAPLE"

TOUGH
WARP-FREE
SPLINTER-PROOF

For All Industries

ShopTop quality is superior to maple — with up to 50% greater economy. Select kiln-dried cores, bonded under pressure and heat, provide a built-in impact cushion to give longer life. Smooth Resinwood facings resist acid, alkali, oil, and grease. For new or replacement work benches.

Made in any size to meet your requirements.

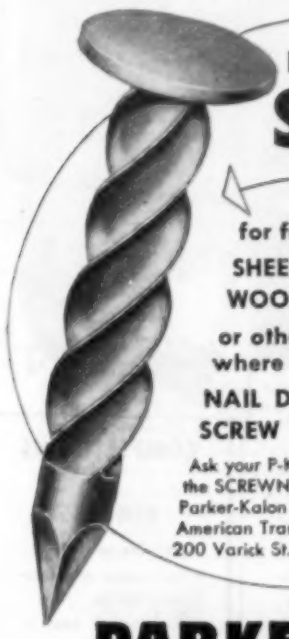
Available through selected industrial distributors in principal cities or write direct for sample and price list.

QUALITY RIMCO MILLWORK

ROCK ISLAND MILLWORK COMPANY
RESINWOOD DIVISION
Established 1868 Rock Island 3, Illinois

If you write maker identify as IEN - 9485

In to stay when you use P-K



Hardened
Screwnails

for fastening
SHEET METAL to WOOD
WOOD to WOOD
or other fastenings
where you need
NAIL DRIVING SPEED with
SCREW HOLDING POWER

Ask your P-K Distributor for samples and the SCREWNAIL folder, or write: Parker-Kalon Division, General American Transportation Corporation, 200 Varick St., New York 14.

PARKER-KALON®
FASTENERS

If you write maker identify as IEN - 9486

TROMBETTA SOLENOID CO.
331 N. MILWAUKEE ST. • MILWAUKEE 2, WIS.

SB-373 SHOE BRAKE
10" WHEEL, 5" FACE, 450 FT.-LBS.

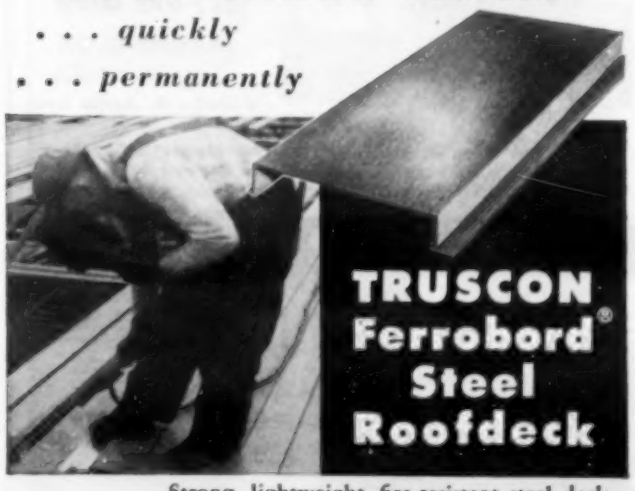
SB-300 LINE OF BRAKES
TORQUE 3 TO 16500 FT.-LBS.

B-100 LINE OF DISK BRAKES
TORQUE 10 TO 25000 FT.-LBS.

EIGHT LINES OF SOLENOIDS
RECIPROMOTORS AND SEMOTORS

If you write maker identify as IEN - 9487

ROOF LARGE AREAS
. . . quickly
. . . permanently



Strong, lightweight, fire-resistant steel deck for flat, pitched, or curved roofs. In units long enough to span three or more purlin spacings. Each member firmly interlocks along its full length with adjoining unit for maximum strength. Erected from above, no scaffolding needed. Ideal surface for application of insulation and built-up waterproofing. 18-gage and 20-gage copper-bearing steel, 6" wide, 1½" or 1¾" deep. Free book has details, sizes, specifications. Write:

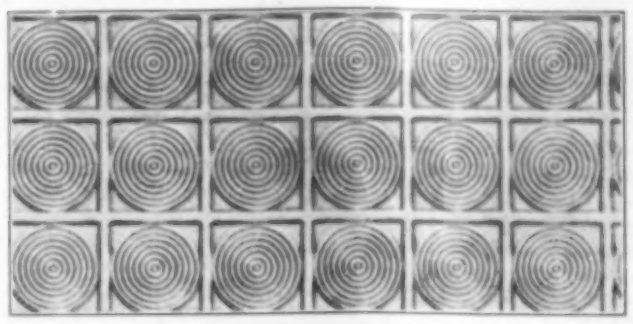
TRUSCON®
a name you can build on

TRUSCON STEEL DIVISION
REPUBLIC STEEL
1094 ALBERT ST. • YOUNGSTOWN 1, OHIO
Export Dept: Chrysler Bldg., New York 17, N.Y.

If you write maker identify as IEN - 9488

Metals - Design strengthened C-i-S pattern conceals marks, scratches

Source: RIGIDIZED METALS CORP.
664 Ohio St., Dept. IEN, Buffalo 3, N. Y.



Sample card upon request

Diminishing circles, enclosed in squares, make up this new C-i-S pattern in the company's line of Rigid-Tex design strengthened metals. The new pattern is intended for decorative applications and for use in appliances and equipment as functional trim to conceal finger prints, scratches, smudges. The surface controls light diffusion to eliminate glare and surface distortion. The pattern can be finished in two-tone effects, in sparkling electro-polished Super-Luster and in "colorized" painted finishes.

Width is to 7¾ inches. Maximum thickness is 0.025 in. and maximum pattern depth is 0.005 inch. Maximum width and thickness are based on Type-302 annealed stainless steel. Maximum thickness can vary with the type and temper of the specified metal. The new pattern is available in any metal, solid or perforated.

If you write maker identify as IEN - 9489

Hoist - Drum type electric with push button control, ¼ to 2 ton

Source: COFFING HOIST CO.
800 Walter St., Dept. IEN, Danville, Ill.

Bulletin CQ

Six assemblies comprise a new Cable Quik-Lift electric hoist line which the company has added to its previously developed chain type Quik-Lift hoist. The smallest unit rates ¼ ton, has lift speed of 30 fpm. and a lift range of 10 feet. It is driven by a ½-hp. motor. It weighs 116 lb. and provides minimum distance of 21 in. between hooks in the trolley suspension shown in the illustration.

The largest hoist in the line rates 2 ton, has a lift speed of 15 fpm. and is driven by a 2-hp. motor. It has a lift range of 18 ft. and minimum distance between hooks, in the trolley suspension, of 31 inches. Lug, hook, trolley and motorized trolley suspension can be specified on sizes with rating to 1 ton. The 2-ton unit is available with lug, trolley and motorized trolley suspension.

Construction includes push button control, separate load and motor brakes, a limit switch to prevent over-riding, a latch equipped load hook that cannot snag on wires or ropes.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9490

ALUMINUM Conveyors

—have many advantages: *Light weight, easy-to-handle, easy to assemble.* Ideal where portable conveyors are desired.
Aluminum ROLLER Conveyor, available in several roll sizes, in lengths and roll spacing as required. Stock materials and parts permit quick shipment on made-to-order basis.
Aluminum WHEEL Conveyor, carried in stock complete for immediate shipment. In 12" or 18" widths with 10 wheels per foot.
Write for further information.

Logan Conveyors
LOGAN CO., 276 CABEL ST., LOUISVILLE, KY.

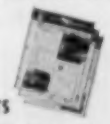
If you write maker identify as IEN - 9491

Pines Series 1400 production bender installation at Quaker Stretcher Company, Kenosha, Wis.

HOW SMALL PINES *Hydraulic* BENDERS SPEED OUTPUT of TV SERVETTE TRAYS

At Quaker Stretcher Co., Kenosha, Wis., four Pines Series 1400 Benders are producing high quality bends for TV servette tray legs at unusually low cost. Two smooth, 90° bends on a 2" CLR are formed in 5/8" x .018" wall, roller-coated, lock-seam tubing *without marring the black enamel finish.* The machines, costing under $2000.00 each, are operated by women. High efficiency is maintained. *Net production per machine averages 432 bends per hour,* and the only scrap loss is a very few pieces while making setups. Pines Series 1400 Benders feature small capital investment, fast, easy operation, and uniform results. Hydraulic actuation assures dependable accuracy, low operating cost.

Closeup showing easy-operating manual toggles, simple tooling. Plug mandrel, Ampco bronze wiper die produce smooth, mar-free bends in pre-coated stock.



Free DATA SHEETS

Write for free copies of "Pines News" illustrating latest cost-cutting bending techniques. Or, call on Pines Engineers for assistance on any job.

PINES ENGINEERING CO., INC.
Specialists in Tube Fabricating Machinery 835 WALNUT • AURORA, ILLINOIS
PRODUCTION BENDING • REBORING • CHAMFERING MACHINES

If you write maker identify as IEN - 9492

SAVE... TIME MONEY TROUBLE

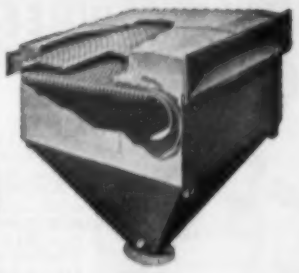
Rex Sprockets with Taper-Lock Bushings

Here are the sprockets that give you quick, off-the-shelf delivery...are quick to put on or take off the shaft...and that save you money. Just assemble sprocket and bushing and lock them on the shaft. No re-boring, key seating or drilling and tapping for setscrews required. Get all the cost-saving facts. Send for your copy of Bulletin 53—21. Write Chain Belt Company, 4675 West Greenfield Avenue, Milwaukee 1, Wisconsin.

CHAIN BELT COMPANY

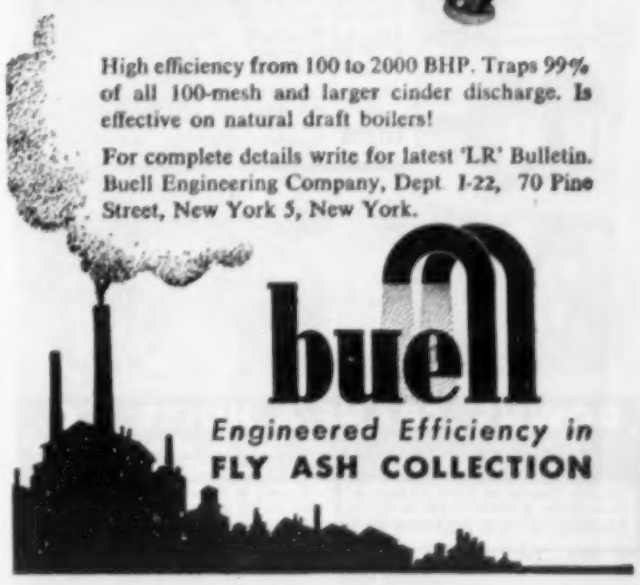
If you write maker identify as IEN - 9493

Buell-designed 'LR' Collector Stops Fly Ash From Small Boilers!



High efficiency from 100 to 2000 BHP. Traps 99% of all 100-mesh and larger cinder discharge. Is effective on natural draft boilers!

For complete details write for latest 'LR' Bulletin. Buell Engineering Company, Dept. I-22, 70 Pine Street, New York 5, New York.



buell
Engineered Efficiency in
FLY ASH COLLECTION

If you write maker identify as IEN-9494

Send for this Free Booklet

It tells WHY . . . "Powder-Packed" RENEWABLE FUSES Give Three Times the SERVICE

TRICO

"The Inside Story of TRICO Renewable Fuses"

Booklet 306-A . . . 24 pages of interesting fuse facts . . . Quick reading . . . Informative . . . Profusely illustrated . . . Shows all the comparative facts about TRICO (VS) "BARE-LINK" types . . . Explains why only TRICO "Powder-Packed" fuses eliminate:

- Needless Fuse Blowing.
- Burning of Fuses and Clips.
- Arcing at Contacts.
- Wasted Power.
- Unnecessary Shutdowns.
- Dangerous Fire and Explosion Hazards.

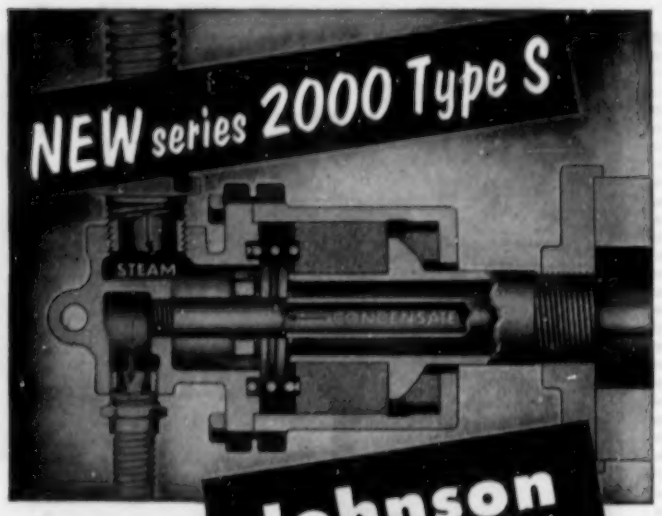
TRICO KLIPLOK CLAMPS FOR FUSE CLIPS

Save fuses . . . clips and power. Lock like a vise. Prevent arcing at contacts . . . prevent unnecessary fuse blowings.

WRITE FOR BUL. NO. 6

TRICO FUSE MFG. CO. MILWAUKEE, WIS.

If you write maker identify as IEN-9495



Johnson Self Supporting Joints

Now Smaller Size
- Lighter Weight
- Lower Cost
- Longer Life

WRITE FOR NEW CATALOG

THE JOHNSON CORP., 846 Wood St., THREE RIVERS, MICHIGAN

If you write maker identify as IEN-9496

CRANE WHEELS AND WHEEL ASSEMBLIES

INSTALL THESE WHEEL ASSEMBLIES complete with axles, bearings, drive gears, grease fittings and all necessary parts for a complete installation. There are sizes, types, and styles of mounting to suit every requirement.

DOUBLE FLANGED WHEELS range in standard tread diameters from 7½" to 24"; SINGLE FLANGED WHEELS from 4" to 8". Wheels are available unmounted or in completely assembled units.

WRITE FOR CATALOG — Complete line of Downs Crane Wheels and Assemblies are illustrated and described in new Catalog No. 3540. Specifications included. Write today!

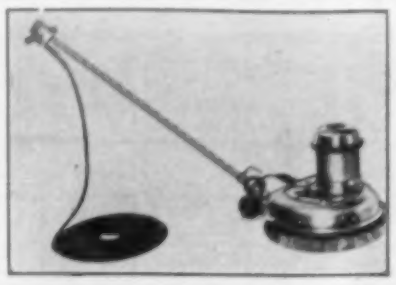
DOWNS CRANE & HOIST CO.
MECHANICAL ENGINEERS
540 W. VERNON AVENUE LOS ANGELES 37, CALIF.

Electric Cranes • Hand Cranes • Jib Cranes • Sheaves • Sheave Blocks • Plate Grips • Plate Hooks • Crane Trolley Hoists • Crane Wheels • Crane End Truck Units • Jib Crane Fittings • Automatic Mechanical Load Brake Crane Hook Blocks

If you write maker identify as IEN-9497

Cleaning - Rotary brush machine to scrub, sand, wax and polish a floor

Source: KENT COMPANY
816 Canal St., Dept. IEN, Rome, N. Y.



"Balanced Power"

The motor on this new Type K-22 machine is off-set from the center of the brush to counter balance the handle weight and to minimize side pull when the machine is in operation. The new unit has been developed particularly for factory floors and large floor areas that are normally difficult to clean.

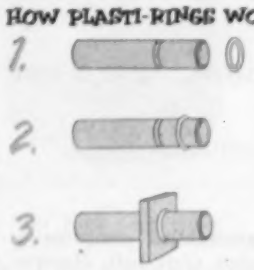
Heavy grease accumulations can be dry scrubbed. The machine is suited also for wet scrubbing. In dry operation, it employs a brush containing five individual brush units, each mounted on ball bearings. The action is both self-cleaning and self-sharpening. The 1-hp. motor is enclosed. The connecting gears are sealed and provided with positive lubrication. The handle can be adjusted for the height of the operator. Weight on the brush is 130 pounds. Operation is at 160 rpm.

If you write maker identify as IEN-9498

Fastening - Vinyl plastic ring rolls into retainer groove in a shaft

Source: SHAKEPROOF DIVISION
2501 N. Keeler Ave., Dept. IEN, Chicago 39, Ill.

HOW PLASTI-RINGS WORK



Samples on request

Assembly parts are retained on a shaft that has been grooved to take the company's new Plastic-Ring. The ring stretches a little when it is applied over a shaft end. It contracts into the groove to provide retaining action that will take up to 250 lb. in direct shear. It will not vibrate out of place. It can be removed and replaced when this is required.

It is intended for use in the place of cotter pins, nuts, split rings, metal snap rings, certain cotter keys, bent and coiled wires and other fastening devices employed to hold two or more parts together relative to one another. Sizes are subject to specification.

If you write maker identify as IEN-9499

Lab-Hyam is a new laboratory size dissociated ammonia generator to apply in metallurgical laboratories for test and pilot runs in bright annealing electric metals, stainless steels, ferrous or nonferrous metals or alloys, for bright copper or silver brazing and for sintering or reducing powdered metals requiring a strong reducing atmosphere. Raw ammonia gas is cracked in a catalyst chamber. A needle valve controls flow of dissociated gas to the work. The new equipment has been developed by Lindberg Engineering Co., 2450 W. Hubbard St., Dept. IEN, Chicago 12, Ill.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-9500

STOP PROFIT-ROBBING ACCIDENTS

EASILY REACHED

OUT OF THE WAY OVERHEAD

INSTALLED ANYWHERE

WITH PRODUCTION-BOOSTER WAYNE HOSE REELS

REMOVE ACCIDENT HAZARDS: No suspension cables or coils of loose hose to trip over. Operator draws out only the hose length needed, releases it for automatic rewind when he is finished.

RELIEVE WORK FATIGUE: Keep tools out of the way but within easy reach, cut waste motion. Automatic uptake positions tool directly over or beside work. Finger-tip control of tools.

PROVIDE SAFER EQUIPMENT: No electric motor needed. Reel is spring-activated.

The Wayne Production-Booster Hose Reel promotes high-speed assembly and production as well as safety. Turns your average operator into a skilled craftsman by making every motion count. You save wear, tear, and breakage, too, on hose and costly tools. Savings possible in hose life can offset cost of reel. Write for illustrated data folders.

THE WAYNE PUMP COMPANY
SALISBURY, MARYLAND
Toronto, Canada

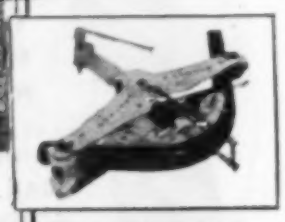
Wayne
NATION WIDE SERVICE

If you write maker identify as IEN-9501

By making one offset and one 90° bend with a TAL ONE-SHOT BENDER in several full lengths of pipe, 3 fittings, 3 cuts and 6 welds or threads were saved on each length, in the heating installation at the warehouse of the Wisconsin National Air Guard in Milwaukee. . . . The following labor and material was eliminated in ¾" to 6" pipe: 43 fittings, 43 cuts, 86 welds or threads and scrap pipe *because 43 bends were made instead with the TAL ONE-SHOT BENDERS,* which complete bends in one operation.

- 31½ hours in time
- $131.14 in materials

SAVED ON 43 BENDS WITH A TAL PORTABLE BENDER by E. D. WESLEY CO. MILWAUKEE



COMPLETE LINE OF BENDERS

- For pipe up to 8"
- For copper and thin-wall tubing.
- For radiant heat in any radius.

TAL BENDER, INC.
DEPT. 2 • MILWAUKEE 2, WISCONSIN

If you write maker identify as IEN-9502

Stonehouse SIGNS FOR INDUSTRIAL ACCIDENT PREVENTION

Safety on the March

Whatever your hazard, warning or guidance there's a Stonehouse sign to meet them. Shown in full color in our complete 64-page Catalog. It's sent free on request.

Stonehouse SIGNS, Inc. MANUFACTURERS • Stonehouse Bldg., 9th at Larimer Denver 4, Colorado

ACCIDENT PREVENTION • steel SIGNS IN STANDARD COLORS AND DESIGNS

If you write maker identify as IEN-9503

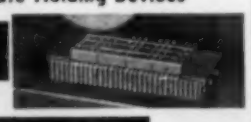
MAGNE-BLOX

SPEED SURFACE GRINDING SET-UPS WITH MAGNE-BLOX

Laminated Parallels
V-Blocks & Angle Irons

- Grind Work Square
- Grind Work Parallel
- Hold Round Pieces
- Save your Magnetic Chucks
- Eliminate Clamps
- Eliminate Holding Devices

UNIVERSAL SET Code GANBO In Case $22.25



Write for Folder—Code GINXA

RADIUS DRESSER

SPEED UP PRODUCTION with the "Little Wonder" RADIUS DRESSER

Dressing and Shaping Grinding Wheels up to 1" Convex or Concave Without Diamond - Code GANLE $39.50

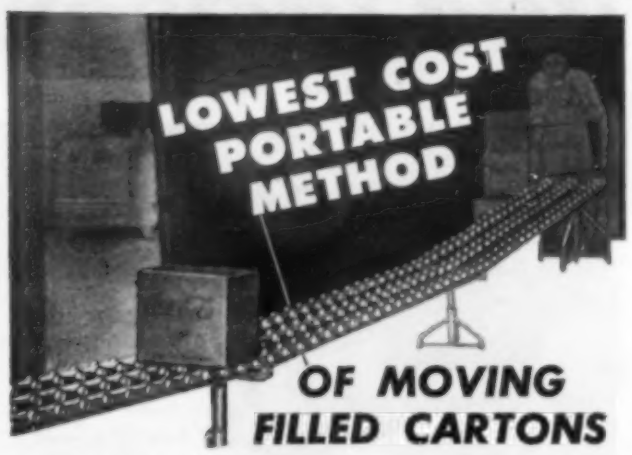
Natural Pointed 1/3 K. Diamond $6.50

Better Support by using Swinging Arm pivoted on Lapped Centers, eliminating Vibration and giving Better Finish.

Write for Illustrated Folder—Code GINYV

GEORGE SCHERR CO., Inc.
COMPLETE LINE OF PRECISION INSTRUMENTS
200-EN LAFAYETTE ST. • N.Y. 12, N.Y.

If you write maker identify as IEN - 9504



OF MOVING
FILLED CARTONS

ONLY A-F Live Rails give the low cost *flexible portability* needed in this storage warehouse. Here, in this instance A-F *Live Rail* 10 ft. "Singles" are placed (in sets of 3) on A-F Portable Stands to unload filled cartons. As truck is emptied, additional sets of *Live Rails* are shoved farther and farther back into the emptied interior . . . A-F *Live Rails* in 5 ft. and 10 ft. lengths, assembled sections or "Singles"—Straights or Curves—save you time and money in many different ways. Lightest in weight—ultra flexible in usage—they never become obsolete. Write for FREE Catalog and prices.

A-F LIVE RAIL

Design and Mechanical Patents Pending

Pre-Engineered Products Division

ALVEY-FERGUSON . . . OF CINCINNATI

348 Disney Street, Cincinnati 9, Ohio
WEST COAST . . . P. O. Box 244 . . . Azusa, Cal.

If you write maker identify as IEN - 9505

Now! Greater than Ever
FACILITIES
TO MEET YOUR ASSEMBLING REQUIREMENTS!

POWER SCREWDRIVERS

SELECTIVE PARTS FEEDERS

SPECIAL ASSEMBLING MACHINES

EXTENDED ENGINEERING SERVICE

POWER SCREWDRIVER

BARREL FEEDER

BOWL FEEDER

SPECIAL ASSEMBLING MACHINE

● *Action . . . More Action . . .* in your assembly department! *More Speed . . . Greater Accuracy . . . Lower Costs . . .* Vital factors in your production program . . . Advantages available to you through the DPS expanded line and increased manufacturing facilities . . . Tell us your story . . . *Let our trained engineers analyze your problem . . .* Whatever your feeding and assembling operations may be, they will come up with a practical solution.

GIVE US THE DETAILS . . .
SEND SAMPLE ASSEMBLY.

DETROIT POWER SCREWDRIVER CO.

2815 W. FORT ST. DETROIT 16, MICHIGAN

If you write maker identify as IEN - 9507

Stroboscope - Flashing light "stops" rotating unit to read speed

Source: GEORGE L. NANKERVIS COMPANY
19255 W. Davidson Ave., Dept. IEN, Detroit 23, Mich.

Bulletin, "Model H"

Strob-Light Model H is a simplified adaptation of a stroboscope for use in connection with a hand tachometer, a stop watch and a speed chart to determine rotating speeds. It applies in checking instrument calibration, in counting slip rpm. and in reading the speed of variable speed equipment. It consists essentially of a glow tube mounted in a reflector equipped housing with a charging circuit and an extension cord to plug into a 110-volt 60-cycle ac. circuit.

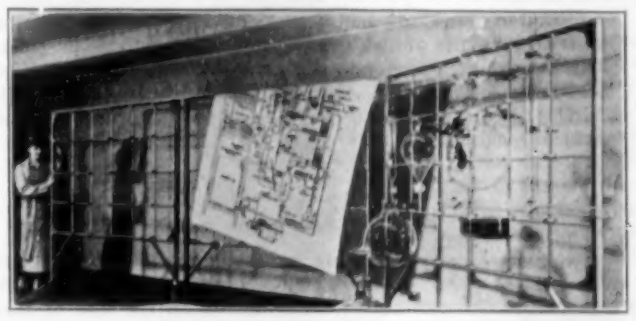
It produces 60 flashes per sec. to light a mark placed by the user on the rotating equipment. When this mark appears as a single stationary mark the equipment is rotating at 3,600 rpm. When the mark appears as two marks, rather than one, the rotating speed is 1,800 rpm. If the mark appears to rotate slowly in the same direction as the equipment is rotating the speed is somewhat lower than the synchronous figure. If the mark rotates in the opposite direction the speed is somewhat higher. The amount can be determined by counting the speed with a stop watch.

A hand tachometer is employed to determine the approximate sychronous speed range according to the chart that is supplied with the instrument. Application can be made to check speeds in 16 intervals between 450 and 3,600 rpm. and at 10 additional intervals to 6,000 rpm.

If you write maker identify as IEN - 9508

Testing - Apparatus frame for laboratory use, mounts on floor

Source: FISHER SCIENTIFIC CO.
717 Forbes St., Dept. IEN, Pittsburgh 19, Pa.



Super Flexaframe

Illustrated is new assembly of the company's previously developed Flexaframe which consisted of unitized rods of hard aluminum alloy. The new design includes a floor type mounting frame to provide a total of 24 sq. ft. of adjustable and interchangeable support space in a firm 6 by 4-ft. frame mounted on two cast iron bases. The unit weighs about 60 pounds. It can be moved from one location to another or bolted to the floor or wall for permanent installation. Three 6-ft. horizontal support rods and five 4-ft. vertical rods can be positioned as required by means of the U-type reinforced channels and connectors.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 80

If you write maker identify as IEN - 9509

FREE . . . *Latest Data on Problem-Solving*
SET SCREWS

If you have puzzling set screw problems, check off below, the special type Setko Set Screws that seem to fit your need. Bulletins on these will be supplied.

SPECIAL TYPES
- ☐ Increased Holding Power NU-CUP Set Screws
- ☐ Hollow-Head Self-Locking IMPROVED ZIP-GRIP*
- ☐ Slotted-Head Self-Locking OFFSET Set Screws

REGULAR SET SCREWS
For prices and general set screw data check
- ☐ New COMPLETE CATALOG No. 19.

Write name and address in the margin of page, tear out and mail. Bulletins or catalog will be sent promptly . . . no charge or obligation.

Set Screw & Mfg. Co.
*Pat. Pending
5 Main St., Bartlett, Ill. (Chicago Suburb)

We Specialize in Solving Puzzling Set Screw Problems

If you write maker identify as IEN - 9510

NOW! DRUMS ALTERNATED AUTOMATICALLY
on New Alvey-Ferguson Conveying System!

drums are shunted automatically into 2 lines, so that they may be picked up in groups of 4 by a special fork lift truck, without the use of pallets, for handling to storage or shipping.

IF YOU have to move barrels, cans, drums or cases you owe it to your company to investigate the possibility of using A-F *Engineered* Conveyors. . . . whether your requirements call for a single A-F "Live Rail" Roller Conveyor Section or a completely co-ordinated plant-wide system with electrically operated dispatcher, traffic controls, barrel "down-enders," barrel elevators, case handling MergA-Flow etc.—

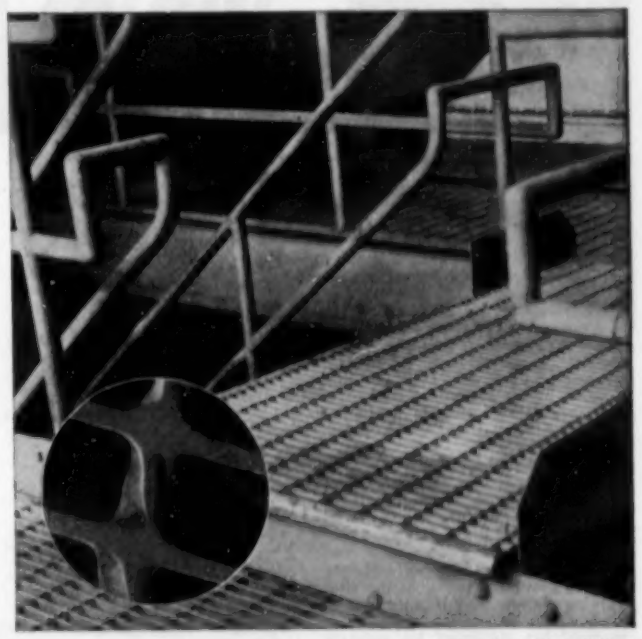
YOUR NEXT CONVEYING SYSTEM SHOULD BE ENGINEERED BY

ALVEY-FERGUSON

Established 1901 . . . 343 N. Disney Street
A-F CINCINNATI 9, OHIO

West Coast Plant — 760 N. Georgia St. — Azusa, Cal.

If you write maker identify as IEN - 9511



Grating by BLAW-KNOX

where do **you** need
steel grating?

There must be lots of places where you are now using grating—floors, platforms, walkways, catwalks and stair treads, for example.

But how about other uses—such as some sturdy shelving or a fan guard—or for covering a dangerous open pit or a light well. Take a good look around your plant and you'll probably come up with several jobs, including perhaps a new use, as steel grating is adaptable to many applications.

Any time you want some help on a job related to grating, we'll be glad to hear from you.

Only BLAW-KNOX Electroforged® Steel Grating and Stair Treads —have these five exclusive features:

1. rigid one-piece construction —easy to install
2. all surfaces accessible —easy to paint
3. no sharp corners to clog —self-cleaning
4. maximum open area —for light and ventilation
5. non-slip twisted crossbar —safe footing

A short note will bring you a copy of new Bulletin No. 2365-R—a dimensional sketch will bring you a quotation.

BLAW-KNOX

BLAW-KNOX COMPANY
2050 Farmers Bank Bldg., Pittsburgh 22, Pa.
BLAW-KNOX EQUIPMENT DIVISION
GRATING DEPARTMENT

GRATING APPLICATIONS: floors • platforms • walkways • catwalks • stair treads • fan guards • shelving • and many other uses, both outdoors and indoors, for versatile steel grating

If you write maker identify as IEN - 9513

Advantages of Eastman's NEW

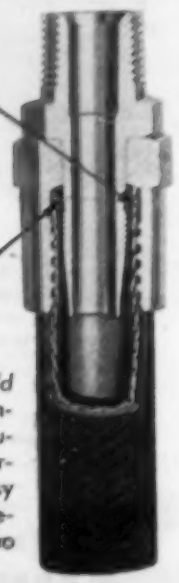
2-piece Reusable Hydraulic Hose Coupling

For Field Application On One Wire Braid Cotton Cover Hose

A. External flow of Hose directed into special recess machined in coupling body.

How Eastman INTER-LOCK grip doubles the hold by molding the hose

B. Internal flow of hose directed into undercut in coupling insert.



Eastman, *first in the field* of hydraulic hose assemblies, offers this new coupling, with Exclusive Inter-Lock Grip, for quick, easy field application. No special application tools, no stripping of hose.

FREE Send for New Special Bulletin 105 Complete specifications and sizes of hose, fittings and adapters. Instructions for ordering and assembly.

Eastman *first in the field* HYDRAULIC HOSE ASSEMBLIES

EASTMAN MFG. CO. • Dept. IEN-9 • MANITOWOC, WIS.

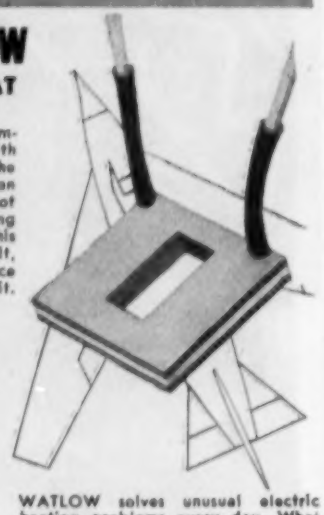
If you write maker identify as IEN - 9514

The Case of the "BIG STALL"

SOLVED BY WATLOW ELECTRIC HEAT

CASE Most military and commercial aircraft today are equipped with a "stall warning" device mounted in the leading edge of the wing, which gives an audible and visual warning to the pilot when the plane approaches a stalling attitude. The problem of preventing this device from freezing was very difficult, because of the limited amount of space available for an electric heating unit.

SOLUTION Watlow designed the heat unit illustrated here which becomes an integral part of the stall warning device. It measures only 1.280" x 1.125" x .200" thick, with a lava core and two flexible leads, and gives sufficient heat to prevent freezing of the stall warning device. This is only one of many types of heating units which Watlow has designed for military and commercial aircraft.



WATLOW solves unusual electric heating problems every day. What is your heating problem?

Since 1922—Designers and Manufacturers of Electric Heating Units

WATLOW ELECTRIC MFG. CO.

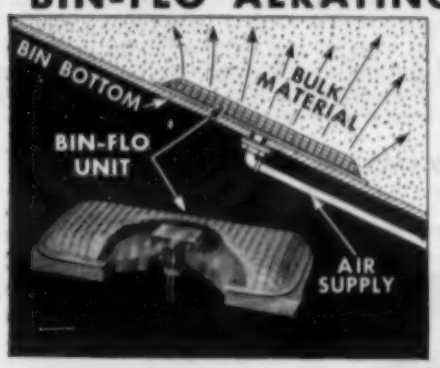
1370 FERGUSON AVE.

SAINT LOUIS 14, MO.

HOT PLATES IMMERSION BAND CARTRIDGE

If you write maker identify as IEN - 9515

BIN-FLO AERATING UNIT

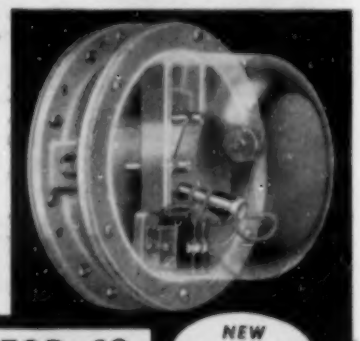


Provides Steady Flow of Dry, Finely Ground Materials which tend to bridge in storage. Uses only small amount low-pressure air.

BIN-DICATOR BIN LEVEL INDICATOR

For All Bulk Materials

signals change in level; automatically starts and stops filling and emptying equipment.



THE BIN-DICATOR CO.

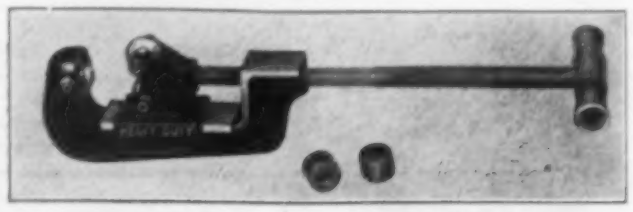
13946-B Kercheval • Detroit 15, Mich.

NEW DETAIL DATA BOOK FREE

If you write maker identify as IEN - 9516

Cutting - Wheel type hand tool for 1/8 to 2 in. pipe, handle adjusted

Source: ERIE TOOL WORKS
731 W. 12th St., Dept. IEN, Erie, Pa.



Pipemaster tool

Quick release pins assist in changing the cutter wheels and rollers in this new pipe cutter. The pins can be taken out after depressing a spring that holds them in place. Adjustment is made for various sizes of pipe, in a range between ⅛ and 2 in., and for feed into the pipe, as the cut proceeds, by turning the tool's threaded stem. It is fitted with a steel handle. The tool is known as the No. 2 Pipe Cutter.

If you write maker identify as IEN - 9517

Strapping - Tensioning tool applies steel strap on concrete forms

Source: A. J. GERRARD & COMPANY
1950 N. Hawthorne, Dept. IEN, Melrose Park, Ill.

Strap slides into open tool side

A steel strap is nailed to one side of a concrete form that is to be secured for pouring and this new Formbinder tool is employed to draw it tightly around the form. In this position, the strap is again nailed and the tool is removed. The strapping material is supplied in 150 and 500-ft. coils of steel measuring ¾ in. by 0.03 inch. The 150-ft. coil is individually boxed. It and the 500-ft. coil are made of round edge steel of uniform tensile strength.

If you write maker identify as IEN - 9518

Two new scoop type shovels, hydraulic and mechanical, are now available as regular attachments on the line of fork lift trucks manufactured by Buda Company, 15401 S. Commercial St., Dept. IEN, Harvey, Ill. Both shovels handle loose or bulk materials and are interchangeable with standard forks. The mechanical assembly mounts directly on the fork hanger bar. The hydraulic shovel mounts in the same manner but is connected to the truck's hydraulic system by quickly detachable hose couplings. The mechanical shovel is released by cam lever action.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9519

Again **ACE** *sets the pace!*

Here's a New "PACKAGE DEAL" for everyone who buys or uses DRILL BUSHINGS

Never before has there been a DRILL BUSHING that offered SO MUCH FOR SO LITTLE

Check these exclusive ACE "Plus-Factors"

✓	HIGHEST QUALITY STEELS	✓	OVER 20,000 SIZES, TYPES AND SPECIFICATIONS OF A.S.A. AND OTHER STANDARDS, plus SPECIALS
✓	BETTER DESIGN	✓	COMPLETE QUALITY CONTROL
✓	SUPERIOR MICRO-FINISHES	✓	TRIPLE-CHECKED with Standard Methods plus DIMENSIONAL AIR GAUGES • SUPER MICROMETERS
✓	PRECISION WORKMANSHIP		LIGHTWAVE CONTROL of Gauging Equipment
✓	INDEX BY BUSHING SPECIALISTS	✓	LARGER AVAILABLE STOCKS, IN PRINCIPLE AREAS
✓	ORDER BY DIMENSION OR SYMBOL		
✓	FASTER DELIVERY		

Yes, these are all part of the new "Package Deal" you get every time you "Specify ACE!"—

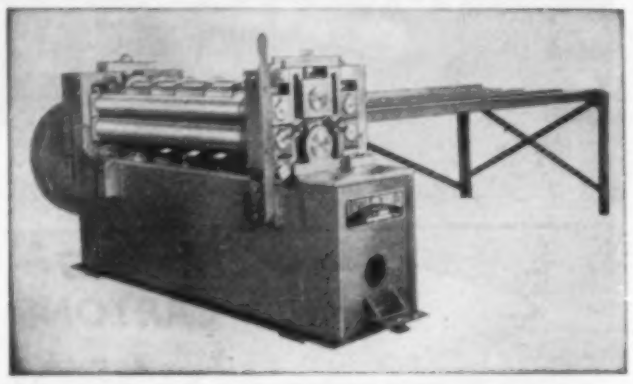
"Industry's First Choice in Drill Bushings"

ACE DRILL BUSHING CO., INC.
5407 FOUNTAIN AVE., LOS ANGELES 29, CALIF.

If you write maker identify as IEN - 9520

RAFTER GANG SLITTER

For Lasting Accuracy



With or without feed rolls for the slitting of varied widths and gauges of metal. Machined and accurately ground cutter shafts made of high-grade carbon steel. Machine cut gears. Generous size bearings. Vertical adjustment of upper spindles allows regrinding of double edge type cutters. By removing two bolts, the end housing is drawn from cutter shafts permitting quick change of cutters. Spacer collars machined and marked for particular job, easily and simply removed for change over of various slitting widths. All features represent accuracy, speed and economy.

RAFTER MACHINE COMPANY, INC.
SINCE 1917

249 Stephens Street Belleville 9, N. J.

COLD ROLL FORMING MACHINES & PRESS BRAKE FORMING DIES

If you write maker identify as IEN - 9521

IT TAKES TWO TO MAKE A BARGAIN

But Only ONE MACHINE To Make Two Bends

Now you can make two bends at the same time in a piece already bent on different planes. The dies are adjustable to any centers within the height of the central die spindle. This feature also insures that both the top and bottom bends will be identical. The PEDRICK Benders are equipped with automatic relay controls for automatic duplicate production bending. Ideal for chair frames, cart handles, and a myriad of other applications.

Write for descriptive folder.

Prices as low as $1575.00

PEDRICK TOOL & MACHINE CO.

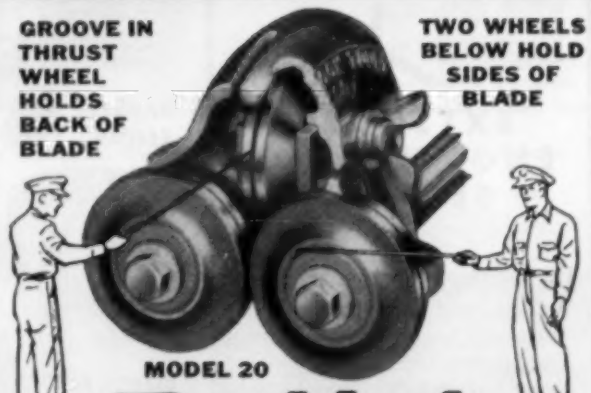
3640 North Lawrence St., Dept. 7, Phila. 40, Pa.

If you write maker identify as IEN - 9522

Sturdy, Strong, Band-Saw Guide

GROOVE IN THRUST WHEEL HOLDS BACK OF BLADE

TWO WHEELS BELOW HOLD SIDES OF BLADE



MODEL 20

Paddock BALL-BEARING **BAND SAW GUIDES**

GUARANTEED SATISFACTION . . . SAVES THOUSANDS OF TIMES THE DIFFERENCE IN COST . . . MORE AND BETTER WORK AT LESS EXPENSE . . . SAFETY IN OPERATION IS GAINED . . . INSURANCE COMPANIES & SAFETY COUNCILS RECOMMEND PADDOCK BALL BEARING GUIDES . . .
SHIPPED ON APPROVAL IF VALUE IS QUESTIONED
$50 PER SET F.O.B. KANSAS CITY
TOP, BOTTOM & ATTACHMENTS (OTHER SIZES FOR LARGE & SMALL MACHINES) . . . SUPPORTS ¼" TO 1¼" BLADES
2⅛" NECESSARY TO INSTALL

PADDOCK TOOL COMPANY

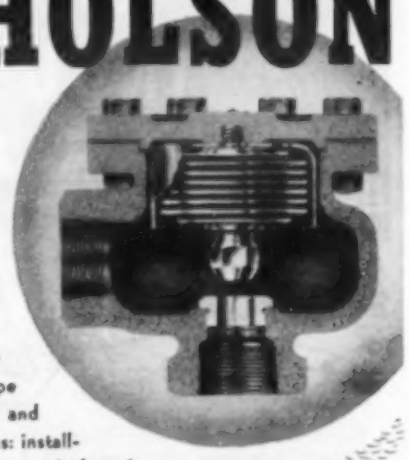
"Guide Makers Since 1920"

1418 Walnut Street Kansas City, Missouri

If you write maker identify as IEN - 9523

NICHOLSON

TRAPS for Every Plant Application



Send for Nicholson Catalog 953. This 32-page standard reference on advance-type trapping of steam, air and other mediums contains: installation diagrams, charts and formulae for determining proper trap sizes, and advice on solving specific problems. See why leading plants are increasingly standardizing on Nicholson traps for increased production and minimum maintenance.

Send for Helpful Booklet

W. H. NICHOLSON & CO.
TRAPS · VALVES · FLOATS
159 Oregon St., Wilkes-Barre, Pa.

If you write maker identify as IEN - 9524

THE CHROMALOX "CASE STUDY" BOOK may SAVE you time money labor

Low cost Chromalox Electric Heaters are doing most plastics processing jobs better, more efficiently, at less cost. This booklet highlights some of these jobs which range from vinyl fusing and laminating through forming, embossing and molding.

Write today for your copy of this useful and profitable booklet of "Case Studies."

IB-26

Industrial Div., EDWIN L. WIEGAND CO., 7505 Thomas Blvd., Pgh. 8, Pa.

See Chromalox Infrared Heat Advertisement, Page 5

CHROMALOX
ELECTRIC HEAT FOR MODERN INDUSTRY

If you write maker identify as IEN - 9525

How to solve 39 PRODUCTION PROBLEMS with Mead Air Devices

Ready!

SEE how to use standard Mead units to make automatic or semi-automatic machines!

New 16-page MEAD PHOTO-BOOKLET presents actual examples in pictures and text of 39 different typical production problems solved by various combinations of Mead Air Operated Devices. Alert production men will readily adopt the ideas to their own needs. This interesting booklet shows how. Write today for booklet "Air Power at Work."

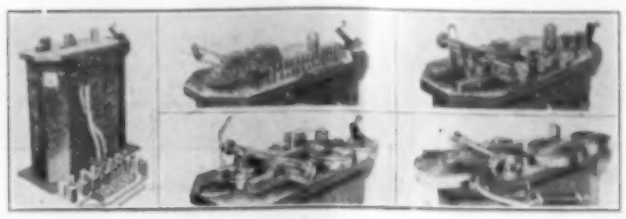
Write for NEW "BOOKLET 39" *Now!*

MEAD SPECIALTIES CO • Dept. EA-94, 4114 N. Knox Ave., Chicago 41, Ill.

If you write maker identify as IEN - 9526

Bending - Pneumatic machine can be set up to punch and shear also

Source: J. A. RICHARDS COMPANY
903 N. Pitcher St., Dept. IEN, Kalamazoo, Mich.



Operates on air pressure at 100 pounds

Model BBB, to the left in the illustration, is a new assembly in the Big Brother line of MultiforM pneumatic bending machines, previously described IEN-7242-50. The new machine is designed to fabricate bus bars, fixtures, brackets, stampings, hangers. It is supplied with dies and mandrels. It also can be equipped with punching and blanking dies, shearing knives, rod parting fixtures and a micrometer gage, as well as the required rolls and dies to handle rod and tube. Capacity in copper and aluminum is to ¼ by 4 inches.

The view shown in the illustration in the upper center shows a set-up for punching and a supply of dies and punches for holes from ⅛ to 1 in. by 16ths. To the upper right is a set-up for round material forming with three radii rolls for stock diameters from ¼ to ⅜ inch. In the lower center is a set-up for round material forming on stock from ½ to ⅝ in. and to the lower right is the forming set-up for 1 inch stock.

Shear blades replace the bending head and mandrel to cut stock to 4 in. in width by ¼ in. in thickness based on cutting copper or aluminum.

If you write maker identify as IEN - 9527

Gage - Micrometer caliper reads direct in ten-thousandths

Source: L. S. STARRETT COMPANY
100 Starrett St., Dept. IEN, Athol, Mass.

Number 221

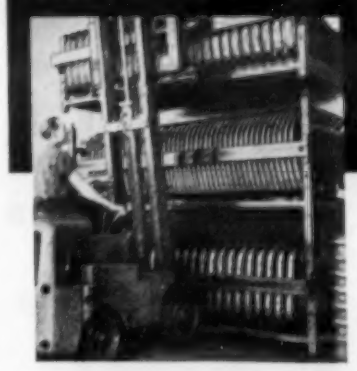
An inner thimble, reading in thousandths, and an outer spring-backed thimble, with graduations providing direct readings in ten-thousandths, characterize construction of this new Hi-Precision micrometer caliper. Measuring faces are brought up snug to a work piece that is to be measured and then the micrometer is "loaded" by continuing to rotate the outer thimble through 9 to 10 divisions against the spring action. The thimble is released at this point to return, due to the spring pressure, until the 0.001-in. graduation on the inner thimble lines up with the reading line on the sleeve. At this point, the 0.0001-in. reading is taken directly from the outer sleeve. Accuracy in 1-in. overall range is within 0.00005 inch.

The new design eliminates need to rely upon "feel" to obtain a reproductible reading. The design is balanced. Finish is satin chrome. The spindle is hardened and ground. The anvil and the spindle face are lapped. The frame carries decimal equivalents. A carbide spindle and anvil face can be specified.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9528

Almost every plant can use MHS WORK CARRIERS *Profitably*



MHS Work Carriers have standard basic design, are adaptable to any shape or commodity.

MHS Work Carriers save time, labor and space. Use them to carry parts in processing, for storage (they nest and stack easily and securely), and in shipping (the carriers prevent damage in freight car or truck shipment). Take advantage of the simplicity, efficiency and economy MHS Work Carriers can bring to your plant. Write for Catalog R-2.

MECHANICAL HANDLING SYSTEMS INC. AND SUBSIDIARIES
4605 NANCY AVE., DETROIT 12, MICH.
Offices in Principal Cities
FACTORIES: Detroit, Mich. • Fairfield, Iowa • Albany, N.Y. • Windsor, Ont.

If you write maker identify as IEN - 9529

Prevent STARTING STALLS

with Twin Disc HYDRO-SHEAVE® Drives

In thousands of diversified applications the HYDRO-SHEAVE Drive, slipped on the end of motor shaft, permits *smoother* acceleration —*eliminates* motor stalls and burnouts. Sizes for motors and engines from ¾ to 50 hp.

Only HYDRO-SHEAVE Drives provide exclusive *Double-Circuit* fluid coupling design for full torque output, maximum shock absorption, less overall diameter with greater capacity.

If you write maker identify as IEN - 9530

New 300-watt Vitrohm ring rheostat with exclusive "twin-shoes"

Ward Leonard's exclusive sintered self-lubricating twin-shoe construction insures uniform contact pressure, plus unusually smooth and trouble-free operation.

Other features of the new 6" Vitrohm ring rheostat eliminate backlash, insure contact pressure, prevent arm over-travel or radial motion. It takes less back-of-panel space, too.

Write for Bulletin 1116, Ward Leonard Electric Company, 33 South St., Mount Vernon, N.Y. 4.13

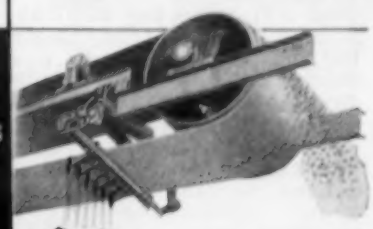
WARD LEONARD ELECTRIC CO.
Result-Engineered Controls Since 1892
RESISTORS • RELAYS • MOTOR CONTROLS • CHROMASTER

If you write maker identify as IEN - 9531

Increase Conveyor Belt Life!

S-A SPRING-TYPE **CONVEYOR BELT CLEANERS**

Savings High — Cost Low!
PRICED AS LOW AS **$44.00**
FOB Aurora, Illinois
State or local sales tax extra



multiple blades keep belt clean and dry

MAIL COUPON FOR ENGINEERING DATA

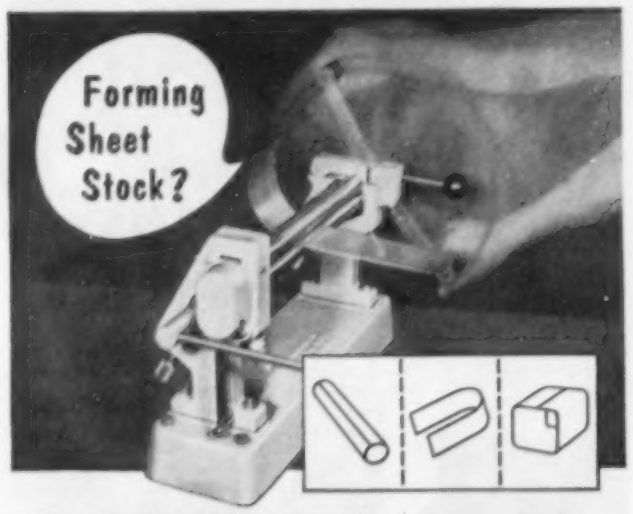
Prevents wet or dry material from being ground into belt by return idlers and pulleys. Reduces abrasion — makes belts last longer. No moving parts, no power required. Adjustable to fit any conveyor. Easily installed by your own plant personnel.

STEPHENS-ADAMSON MFG. CO.
Standard Products Division, 231 Ridgeway Ave., Aurora, Ill.

Please send me your Bulletin 651 on S-A Belt Cleaners.

Name.....
Company.....
Address.....
City.....Zone....State.....

If you write maker identify as IEN - 9532



Do it Quickly, Easily, Accurately with a New DI-ACRO* ROLLER

A cam actuated idler roll—an exclusive feature—makes it possible to form any diameter circle in two operations. Also, bends can be located at any point along the edge of a sheet with straight sections on both sides of the bend. Special rolls available for forming round, other shaped stock. Eight models. Rated capacity to 16 gauge. Forming widths from 6 to 42 inches.

*pronounced Die-ack-ro

di-acro PRECISION METALWORKING MACHINES

SEND FOR 32-PAGE CATALOG

O'NEIL-IRWIN MFG. COMPANY

318 8th Avenue • Lake City, Minnesota

If you write maker identify as IEN - 9533

If you write maker identify as IEN - 9534

At an average cost of less than $10 per machine NOW you can REDUCE VIBRATION SIMPLIFY INSTALLATION with **UNISORB**® Mounting Pads

Your first saving with this modern machine installation method is in the cost of the UNISORB mounting pads . . . an average of less than $10. per machine. And savings in first cost are only the start.

Add to that the saving of 10% to 30% in cost of time and labor for installation, plus the advantage of eliminating up to 85% of transmitted machine vibration. Get the facts about installing your lathes, presses, grinders, etc. on UNISORB.

Return the coupon today for your free copy of FACTS ABOUT ANCHORING YOUR MACHINES ON UNISORB.

The **FELTERS** Company
208 South Street, Boston 11, Mass.

Please send my free copy of FACTS ABOUT ANCHORING YOUR MACHINES ON UNISORB.

Name.....Title.....
(Please Print)

Company.....

Address.....

City.....Zone....State.....

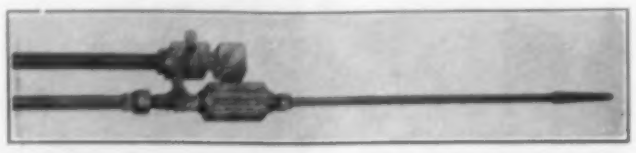
Return to The FELTERS Company
208 South Street, Boston 11, Mass.

TORONTO: A.R. Williams Machinery Co., Ltd.
MONTREAL: Moore Bros. Machinery Co., Ltd.

If you write maker identify as IEN - 9535

Lubricating - Spray equipment blows coolant through flexible nozzle

Source: HENRY G. THOMPSON & SON CO.
277 Chapel St., Dept. IEN, New Haven 5, Conn.



Atom-Lube cools and lubricates

A fine mist of any coolant fluid, from water to heavy oil, can be picked up and delivered in a fine penetrating mist to keep the temperature down at machining and grinding operations. Action is provided by connection to a shop airline operating at 30 to 100 pounds. The air provides suction, in passage through a venturi, to pick up the coolant fluid.

An inner tube in the flexible metal nozzle acts to produce a fine mist at the nozzle opening. This tube can be supplied in copper where adjustment is seldom required or of flexible plastic when the nozzle must be adjusted frequently. Equipment includes a 4-ft. length of ¼-in. clear plastic tube for the coolant supply. The air connection is made at a ¼-in. threaded nipple. Fresh clean coolant is employed. None is recirculated.

If you write maker identify as IEN - 9536

Storing - Rotating rack for bar stock, pipe, structural shapes

Source: H. L. BUSHMAN COMPANY
5729 W. Lake St., Dept. IEN, Chicago 44, Ill.

Eight compartments

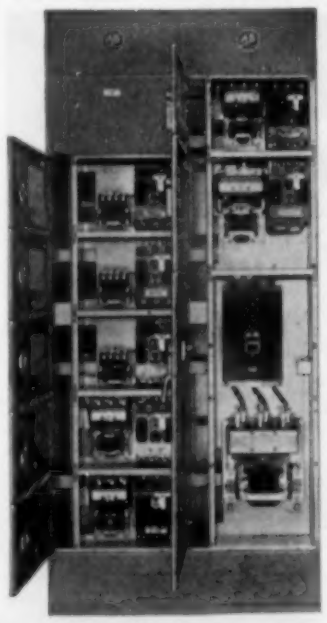
Radial fingers, at various heights on the central rotating standard of this new Roto-Stacker, form V-shaped compartments to hold long slim materials such as bar stock, pipe, small structural shapes in upright position for quick access. The new rack can be located in corners or odd spaces in a plant. Base diameter ranges from 44 to 64 in. in six available sizes. The first three take stock lengths measuring 12, 16 and 20 ft. with load capacity at 10 ton on the unit's Timken thrust bearing. The other three take stock in the same range of lengths but rate 30 ton and are rotated by hand cranking or by an electric motor. Overall height of the rack itself ranges from 114 to 189 inches. Weight is about 1,900 to 4,300 pounds.

If you write maker identify as IEN - 9537

Parts made of aluminum, brass, copper, lead, magnesium tin, zinc can be produced by a combination of forging and extruding in a new impact extrusion operation by Magnesium Company of America, 5222 Indianapolis Blvd., Dept. IEN, East Chicago 19, Ind. Round, square, rectangular, oblong, cup or shell shape parts, having a length diameter ratio exceeding 2 to 1, can be produced with an interestingly low tool charge. Literature and further information on request.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 80

If you write maker identify as IEN - 9538



Bulletin 798 Multi-unit Control Centers for Centralized Operations

A-B Quality

Bulletin 798 Multi-unit Control Centers can be assembled in one or more vertical sections containing starter panel units with disconnect switch or circuit breaker connected to a common power bus. The result is a completely enclosed, dead front, floor mounted switchboard, ready for connection to your motors in the plant.

Allen-Bradley Co., 1312 S. Second St., Milwaukee 4, Wisconsin

ALLEN-BRADLEY QUALITY MOTOR CONTROL

If you write maker identify as IEN - 9539

Need Rails—Switches—Frogs—Guard Rails or Track Tools? For best selections and prompt deliveries—try FOSTER—shipments of most items can be made from stocks in our five nationwide warehouses.

RAILS—New and Relaying Foster stocks are being replenished daily. Any items we did not have last week, we'll probably have next week. We match specifications and sizes to meet all your requirements on any job, new installations or replacements. *Call on Foster for all your needs for Industrial Track Equipment and Supplies.*

Write for Track Equipment Bulletin IE-9

L.B. FOSTER CO.

CHICAGO 4, ILL. HOUSTON 2, TEX.
PITTSBURGH 30, PA. NEW YORK 7, N.Y.

If you write maker identify as IEN - 9540

"We save 2 ways with WEBSTER PUMPS" says Service Caster & Truck Corporation

From an interview with L. D. Hoffman, Chief Engineer, Service Caster & Truck Corporation, Albion, Michigan, recorded by a WEBSTER EKOTAPE

S4024 4000-lb. fork lift truck, made to U. S. Navy specifications for the Army by Service Caster & Truck Corp., is equipped with a WEBSTER Hydraulic Pump

Here you see how the type HC WEBSTER pump is attached for direct drive from engine of Service Caster-built fork lift truck

"The WEBSTER Hydraulic Pump has been very satisfactory. It is easy to install because the drive gear is an integral part of the pump drive shaft. This is an economy feature; we save time installing the unit, and eliminate the problems of a keyed assembly.

"Another reason we use the WEBSTER pump is that it is lower priced than most of the others available for this particular installation. It helps us get the contract.

"This WEBSTER Hydraulic Pump compares favorably with the pumps that we've used previously . . . and saves us money two ways."

CHOOSE FROM **WEBSTER'S** 90 TYPES

The type HC WEBSTER Hydraulic Pump used by Service Caster is but one of 90 types of positive displacement gear pumps with capacities from ⅙ gpm to 30 gpm—at pressures up to 1200 psi—speeds to 3600 rpm—with or without relief valves—for sealed or wet sump mounting.

One of these custom-built units may well be the answer to your particular application. They are highly adaptable to a wide variety of uses in oil hydraulic systems.

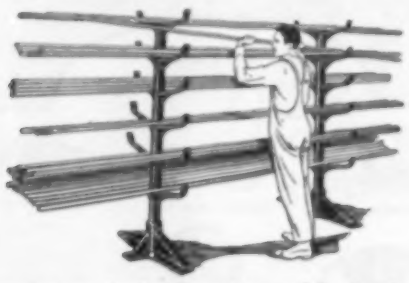
Write us today for a catalog which contains illustrations, descriptions, performance charts, and pump data sheets on which you can tell us your requirements.

OIL HYDRAULICS DIVISION
WEBSTER ELECTRIC
RACINE, WISCONSIN
ESTABLISHED 1909
"Where Quality is a Responsibility and Fair Dealing an Obligation"

MANUFACTURERS OF A COMPLETE LINE OF OIL HYDRAULIC PUMPS

If you write maker identify as IEN - 9542

for EFFICIENT HANDLING and ORDERLY STORAGE



You save time, both in storing and in issuing, when you use Brown Sectional Racks. Open sides speed handling. Complete visibility permits quick selection to save waiting mechanics time.

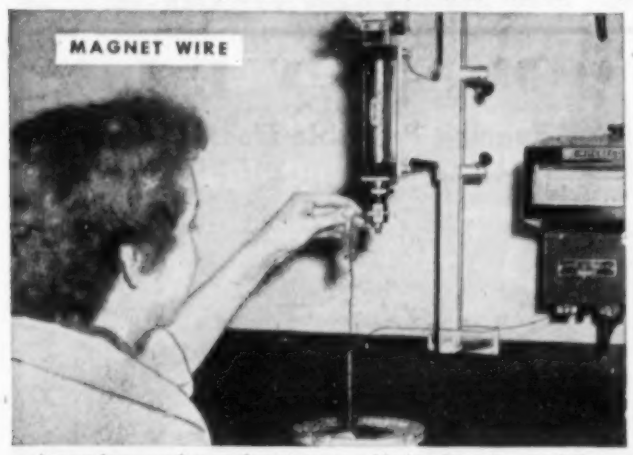
Maximum flexibility in arrangement is possible because each Brown Rack is independent and self-contained, need not be bolted to floor. Easily relocated. Systemized storage with Brown Racks promotes good housekeeping, cleanliness.

All iron and steel construction, can't burn, bend, sag or warp. Never wear out.

Get these values now! Write for complete specifications and prices on wide range of models and sizes. Brown Engineering Co., 122 N. Third St., Reading, Pa.

BROWN QUICK-SERVE RACKS

If you write maker identify as IEN - 9543



Anaconda researcher conducts tests on soldering through enamel film.

The answer to your soldering problem may be here—at Anaconda!

Soldering problem? A new soldering center was set up some months ago as a part of Anaconda's modern, active Development Laboratory. After months of testing, new facts—accurate, reliable—are beginning to come in. If you have a soldering problem, perhaps we can solve it for you out of the experience of the many laboratory tests and experiments we have already made. Ask your Anaconda Salesman, or write *Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.* 54428A

TODAY'S HEADQUARTERS FOR MAGNET WIRE **ANACONDA®**

If you write maker identify as IEN - 9544

Get 19" Lift from 2½" Clearance!

SIMPLEX RATCHET LOWERING JACKS

Lift or Lower Notch-by-Notch—Cannot be Tripped

With Simplex Ratchet Lowering Jacks a minimum of toe clearance is required—and only Simplex Jacks provide equal lift capacity on toe or cap. In fast jacking action, all-purpose utility, extra safety features and rugged strength for longer life, Simplex Ratchet Lowering Jacks give you more for your money! Capacities of 1½ to 35 tons. Write today for Bulletin: Industrial 49.

SAFETY SUGGESTION—Use thin wood block—don't lift or lower steel against steel.

Simplex LEVER · SCREW · HYDRAULIC Jacks

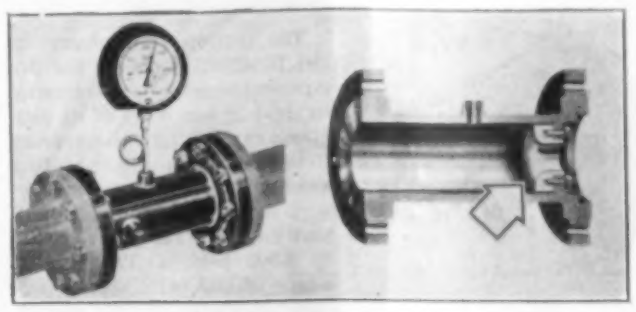
TEMPLETON, KENLY & CO.

2527 Gardner Road • Broadview, Illinois

If you write maker identify as IEN - 9545

Meter - Nozzle pipe section and gage to read flow of steam or gas

Source: KING ENGINEERING CORP.
Box 540, Dept. IEN, Ann Arbor, Mich.



Technical data upon request

Simple construction, consisting of a hardened nozzle and pipe section with an indicating or recording pressure gage, and little need for maintenance are combined with accurate operation, within certain limits, for this new Critiflo-Meter. Accuracy is inherent in the design under any condition when the ratio of absolute pressure downstream from the nozzle to absolute pressure upstream is equal to or less than the critical pressure ratio.

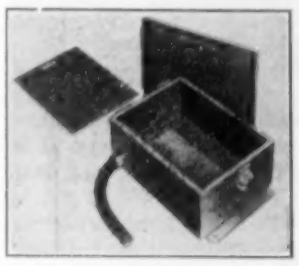
The critical ratio for dry and saturated steam is 0.577. Thus if the downstream pressure is atmospheric, the lowest upstream pressure in the housing that will result in an accurate reading is atmospheric pressure divided by 0.577 or 25.2 lb. absolute. This is equivalent to 10.7 lb. gage.

Application can be made to indicate or record flow, or to combine these two functions, and as a component in a complete control installation in which a pressure regulating valve on the upstream side can be governed by adjusting the meter housing pressure to a required flow. Nozzle sections are available for pipe from 2 to 10 in., for pressure to 900 lb. and for flow rate to 300,000 lb. per hr. of dry and saturated steam.

If you write maker identify as IEN - 9546

Conduit Fitting - Junction box particularly to use in machine wiring

Source: HOFFMAN ENGINEERING CO.
1013 Tyler St., Dept. IEN, Anoka, Minn.



Details on request

Eight sizes, measuring 4 by 4 by 3 in. to 16 by 14 by 6 in., are included in a new line of oil, dust and water tight electrical wiring boxes. The box is made of 14-gage steel in welded assembly and is fitted with two 12-gage mounting feet. The box opening is flanged and a removable panel is supplied to mount timers, relays, terminal strips.

A cover is equipped with a neoprene sponge rubber gasket and is fastened to the box with an external hinge and clamp. There are no screw holes in the cover through which oil might leak if the screws were left out. There are no extra holes or knock-outs and all conduit holes are cut as required. Finish is in gray hammertone baked enamel. The box conforms with JIC Electrical Specifications.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9547

JEVIN MICRO-DRILL PRESS FOR VERY SMALL HOLES DOWN TO .002

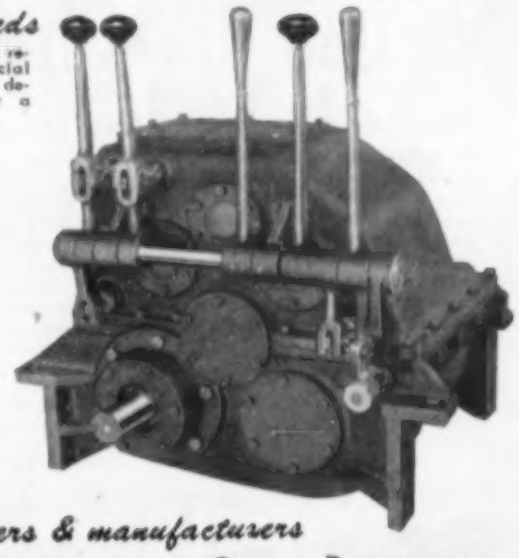
Designed to hold small drills in precision collets, thus overcoming the difficulty of making a drill run true as when held in a conventional drill chuck. Absence of a sliding quill guarantees maximum sensitivity with fingertip control. A mounted ⅛" capacity chuck can also be used.

Send for Catalog L describing Micro-Drill Press, full range of collet sizes, accessories and other precision tools

LOUIS LEVIN & SONS, INC., 3610 S. Broadway, Los Angeles 7, Calif.

If you write maker identify as IEN - 9548

ten speeds (forward and reverse) special transmission designed for a ditcher.



designers & manufacturers

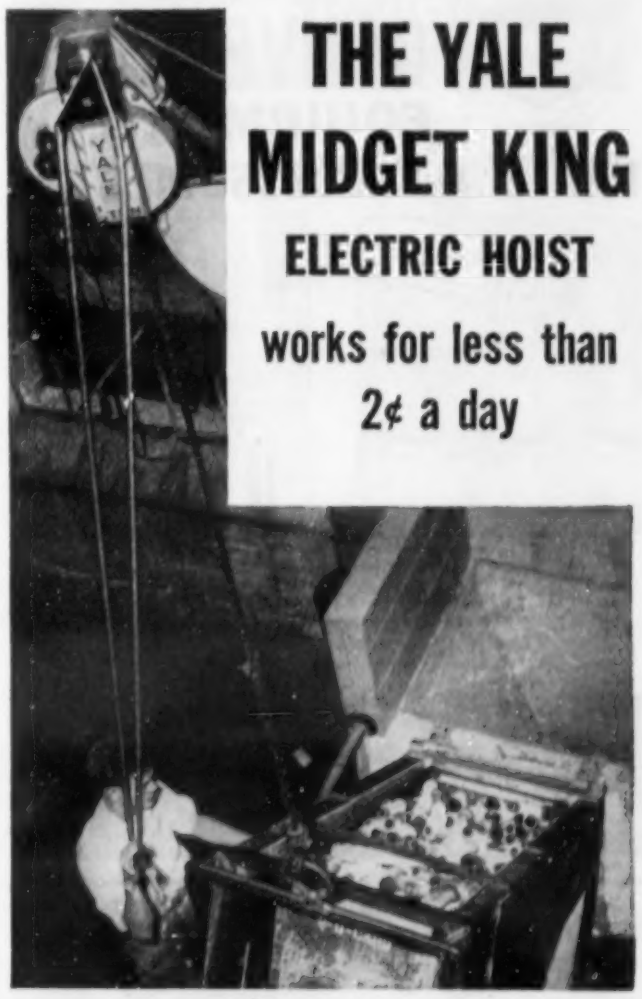
TRANSMISSIONS & SPEED REDUCERS

. . . standard and special, for industrial and agricultural machinery, trucks, tractors, refuelers, industrial shovels, cranes, shop and lift trucks, concrete mixers, road builders, diamond drills, machine tools, feed boxes, gear heads. . . . On many special machines—a standard WESTERN plate or platform model can often be adapted to give the required spindle speeds—send for catalog and engineering data. Our engineering department is at your disposal. . . .

up to 100 h. p. **WESTERN TRANSMISSIONS**

WESTERN MANUFACTURING CO. — 3400 BOOTH — DETROIT, MICHIGAN

If you write maker identify as IEN - 9549



THE YALE MIDGET KING ELECTRIC HOIST works for less than 2¢ a day

Capacities: ⅛, ¼, ½, and 1 ton. Other YALE Hoists to 40 tons.

Hook or trolley suspension.

Load and motor brakes operate with power on or off.

Upper and lower safety limit stops.

Totally enclosed, heavy-duty motors—AC and DC models.

Quality Control inspection at every stage of manufacture.

• Economy of operation is only one advantage of the YALE Midget King. It's light in weight...low in initial cost ...simple in design, operation and maintenance. It is compact, portable, your best bet for all-around, safe, sure one-hand lifting.

YALE*

INDUSTRIAL LIFT TRUCKS AND HOISTS

*Reg. U. S. Pat. Off.

MAIL THIS COUPON TODAY

The YALE & TOWNE Mfg. Co., Dept. 369
Roosevelt Boulevard, Philadelphia 15, Penna.
Please send me my FREE copy of the YALE Hoist Users and Buyers Guide.

Company_____
Name_____ Title_____
Street_____ City_____ State_____

In Canada write: The Yale & Towne Mfg. Co., St. Catharines, Ontario, Canada.

Gas, Electric, Diesel & LP-Gas Industrial Trucks
Worksavers • Hand Trucks • Hand & Electric Hoists • Pul-Lifts

If you write maker identify as IEN - 9551

Rolling Steel Doors

More Practical from Any Standpoint!

No matter how you look at it, no other type of door meets present day requirements as fully as a good power operated Rolling Steel Door. For motor freight loading docks, and other truck and railroad openings in industrial and commercial buildings, these quick opening, quick closing Rolling Steel Doors offer more desirable features than any other type of door. Their vertical roll-up action saves valuable space—there are no overhead tracks or other obstructions to interfere with crane handling adjacent to door openings. All metal construction of Rolling Steel Doors provides permanence, greater protection against intrusion and fire, and it assures you a lifetime of trouble-free service. For information write for Catalog No. G-54.

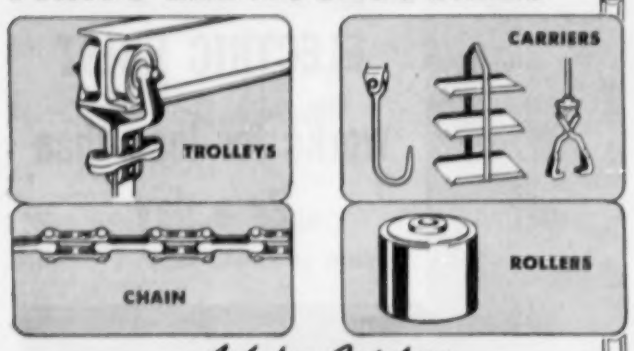
THE R. C. MAHON COMPANY
Detroit 34, Michigan • Representatives in All Principal Cities

MAHON

If you write maker identify as IEN - 9552

WEBB

CONVEYOR EQUIPMENT, PARTS and ACCESSORIES



Ask for Catalogs

No. 50—Trolley Conveyors
No. 51—Floor Type Conveyors
No. 52—Power & Free Conveyors
No. 453—Hand Pushed Trolleys, etc.

JERVIS B. WEBB CO.
Conveyor Engineers and Manufacturers
8915 ALPINE AVE. • DETROIT 4, MICH.
OFFICES IN PRINCIPAL CITIES

If you write maker identify as IEN - 9553

STOP DUST

INSTANTLY with DUSTKOP

DUSTKOP 1400 cfm.

DUSTKOP 3600 cfm.

300 cfm to 10,000 cfm per unit (22 models)

Standard pre-tested, available from stock. Ask for catalog 605-2. Describe dust problem for recommendation by return mail. No obligation.

AGET-DETROIT CO.
401 Main Street
ANN ARBOR, MICH.

If you write maker identify as IEN - 9554

Valve - Center guided check design for main line use on liquids and gases

Source: MILLER VALVE CO.
Box 1255, Dept. IEN, Pittsburgh 30, Pa.

Bulletin 153

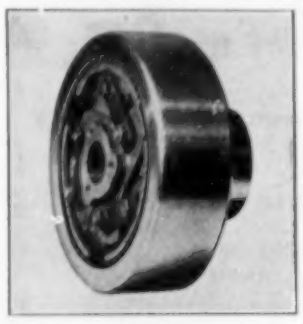
The section view shown in the illustration covers the design employed by the company in the 1 to 8-in. sizes of its new check valve. Larger sizes, from 10 to 24 in., mount the operating mechanism in a center section with integral end flanges. Pressure capacity ranges from 125 to 2,500 pounds. The conical shape of the valve spring permits the disc to open far enough so restriction to flow is negligi- The spring rides in a recess from which it cannot move.

The valve operates without noise. It eliminates the possibility of water hammer. It can be installed horizontally or vertically. Face to face dimension of the 125-lb. assembly is 2½ to 27 in. in the 1 to 20-in. sizes. Outside diameter of the flange is 4¼ to 27½ inches. The low pressure design employs a semi-steel body with bronze trim. The high pressure units are cast steel with stainless trim.

If you write maker identify as IEN - 9555

Drive - Centrifugal clutch loads gradually, prevents overloading

Source: HILLIARD CORPORATION
102 W. 4th St., Dept. IEN, Elmira, N. Y.



Details on request

Twiflex trade names a new centrifugal clutch. It is being manufactured by the company under license from Compression Ignition, Ltd. of England. It employs friction faced shoes pivoted on a driving hub to ride inside a driven hub equipped flange. The shoes take hold gradually as the drive is brought up to speed. They can be set to release when drag on the driven side reaches a predetermined figure.

The clutch is particularly suited for starting duty on textile machinery, wire drawing machinery, conveyors and for drive connection between internal combustion engines and compressors or generators. It is suited for use as an automatic coupling on emergency and dual drive installations.

If you write maker identify as IEN - 9556

Carboloy Dept. has assembled useful information, illustrated with sketches, to recommend the correct manner in which diamond dressers should be used for best results in tool dressing and to obtain the longest possible life from the dresser. If you are interested, we suggest that you ask the company for a copy of this information. It was issued as a News Bureau item on July 27th. Address Carboloy Dept., 11167 E. 8-Mile Road, Dept. IEN, Detroit 32, Mich.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9557

A PAID NEWS ADVERTISEMENT BY MATHEWSON MACHINE WORKS

NEW ADJUSTABLE DRILL JIG eliminates layout; cuts drilling time

Used for drilling holes through round stock and hex stock from ¼" to 2" and cap screws from ¼" to 1¼", the new Mathewson Adjustable Drill Jig eliminates layout and can cut drilling time on small lots to a fraction. And it eliminates the costs of special jigs for larger quantities. Holes for cotter pins, set screws, drive pins for bayonet joints, oil holes in tubular sections, and wiring holes in cap screws, are all typical of the operation that can be done more economically with this jig. Hole diameters range from .052" to .531", using your A.S.A. standard slip bushings. The hardened V-block has two 60-degree V's for centering round or hexagonal stock, one for ¼" to 31/32" diameter, one for 31/32" to 2" diameter. Adjustable stop for locating work longitudinally for drilling any distance from end, may be used on either side. Adjustable bushing carriers hold slip bushings and clamp work securely. Jig highly successful in permitting use of inexperienced drill operators. For circular write to **Mathewson Machine Works,** 26 Hancock Street, Quincy, Mass.

If you write maker identify as IEN - 9558

CESCO *RIGHT... before your Eyes!*

Send TODAY for CESCO Literature

CHICAGO EYE SHIELD COMPANY • 2236 Warren Boulevard, Chicago 12, Illinois

CESCO FOR SAFETY

OFFICES IN: Atlanta, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Detroit, East Orange, Houston, Indianapolis, Kansas City, Knoxville, Little Rock, Los Angeles, Louisville, Mexico City D.F., Milwaukee, Montreal, Peoria, Philadelphia, Pittsburgh, Salt Lake City, San Francisco, Spokane, St. Louis, St. Paul, Toledo, Tulsa, Wichita

If you write maker identify as IEN - 9559

"MARVEL"

Ball Bearing Portable Electric Blower

Model 2
$60.00
⅕ H.P.

Order one on 10 DAYS' FREE TRIAL

2/5 H.P. Model No. 3 — $75.00
1 H.P. Model No. 4 — $98.00

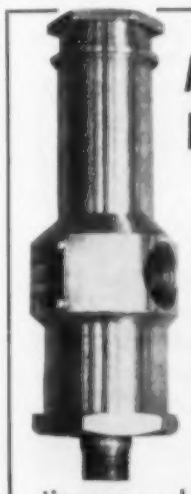
For blowing dust, dirt, chips out of motors, switchboards, or ANY industrial product. Every industrial plant is a prospect.

Write for Bulletin

Vacuum Cleaner Attachment for $18.00 additional for Models No. 2 and No. 3 only.
In daily use in more than 8,000 industrial plants.

ELECTRIC BLOWER COMPANY
352 Atlantic Ave., Boston 10, Mass., U.S.A.

If you write maker identify as IEN - 9560



Now—A Safety Valve That Will Pass All Code Requirements, in ⅜" Size!

Refrigerating Engineers will welcome this addition to the line of Frick Type AF Safety Valves, made heretofore in sizes of ½", ¾", 1" and 1¼".

These superior valves have moving parts of stainless steel, made self-aligning. They close tightly after being opened, and handle two or three times as much gas as older designs of the same pipe sizes.

They are accurately set, sensitive, and dependable. The only refrigeration safety valves meeting all the requirements of the latest A.S.M.E. and A.S.A.B-9 Codes.

For real safety, protect your refrigerating equipment with these Frick valves. Write for literature today.

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA. U.S.A.

If you write maker identify as IEN - 9561

HOW TOOL CRIB CONTROL WILL CUT YOUR TOOL EXPENSE

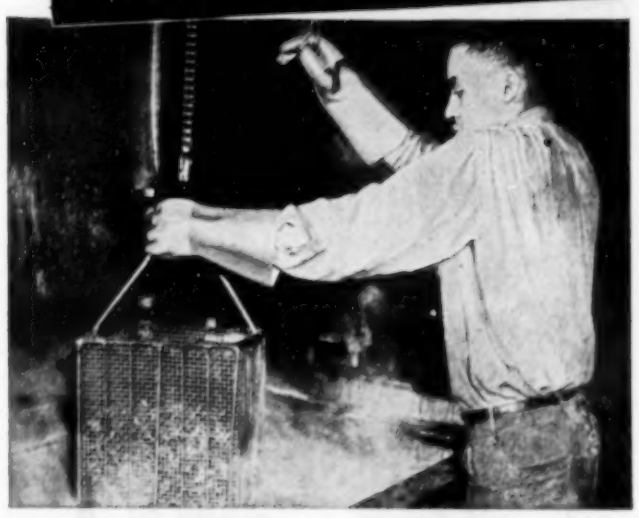
12-page booklet tells how 20 plants stopped loss and theft of tools, reduced crib inventories, cut idle waiting time of men and machines, reduced breakage, stopped disputes—and more, too, with McCaskey Tool Crib Control. Reports show operating improvements and savings that can be made in your plant at a surprisingly small cost.

Write today for your copy of Booklet A-502 IEN and step-by-step procedure.

McCaskey INDUSTRIAL CONTROLS
PRODUCTION · INVENTORY · TOOLS · COSTS · MAINTENANCE
THE McCASKEY REGISTER DIV.,
Victor Adding Machine Co.
ALLIANCE, OHIO
Galt, Canada Watford, England

If you write maker identify as IEN - 9562

Better rubber products are made with Du Pont NEOPRENE



Neoprene gloves protect against acid burns and cuts...save 6¢ per man-hour

Sharp metal parts kept snagging the expensive heavy-gauge rubber gloves used in a midwestern plating company. Workmen's hands were exposed to acids and solvents . . . cuts and burns boosted the plant's injury rate. Finally, various types of gloves were job-tested over a 90-day period. One type proved ideal in every way—a gauntlet-style fabric glove coated with a special neoprene compound.

The neoprene-coated gloves gave maximum protection against snagging and the action of corrosive chemicals. They resisted deterioration and abrasion . . . provided safer, surer handling on the job. Soon there was less time lost through accidents and higher employee morale. And management was able to save 6¢ per man-hour on glove replacements, thanks to the durability of the new gloves.

By turning in top performances such as this, neoprene products are cutting maintenance costs throughout industry. While Du Pont makes no finished goods of neoprene, your manufacturer or distributor will be glad to tell you about the neoprene products he supplies.

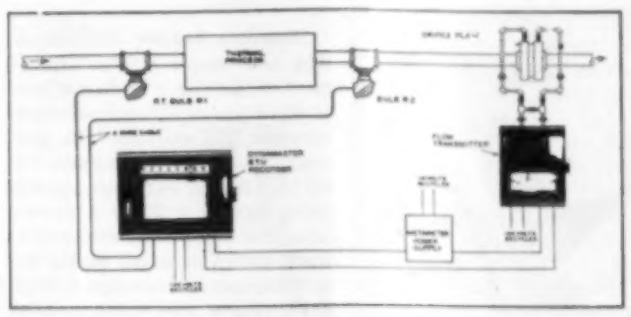
FREE! THE NEOPRENE NOTEBOOK
Each issue describes new neoprene products . . . improved old products . . . tips on reducing maintenance costs. Write today for your free subscription. E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Div. IE-9, Wilmington 98, Delaware.

NEOPRENE
The rubber made by Du Pont since 1932
DU PONT
BETTER THINGS FOR BETTER LIVING . . . *through Chemistry*

If you write maker identify as IEN - 9564

Control - Governs heat exchange in a continuous process installation

Source: BRISTOL COMPANY
107 Bristol Road, Dept. IEN, Waterbury 20, Conn.



Available for specified use

New assembly of the company's Dynamaster and associated equipment provides for fast continuous measurement and control of rate of heat input or output in a process. The equipment can be employed to measure, record and control the quantity of heat supplied to or drawn from process vessels, refrigerating plants, air conditioners.

One Dynamaster measures the temperature difference with two resistance thermometer bulbs and receives the flow rate from a flow transmitter. It continuously computes and records the btu. product resulting from these two variables and provides an output to act through control apparatus to regulate temperature or flow rate of the heat transfer medium. Various arrangements can be made to suit given conditions.

If you write maker identify as IEN - 9565

Testing - Spectrophotometer and colorimeter for material analysis

Source: BAUSCH & LOMB OPTICAL CO.
635 St. Paul St., Dept. IEN, Rochester 2, N. Y.

List price about $240

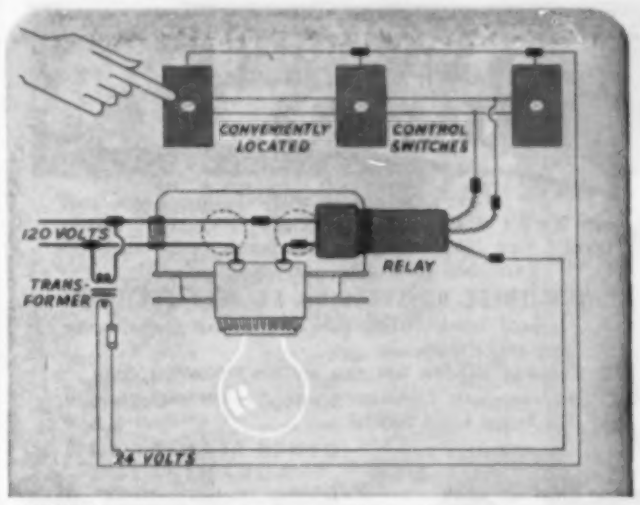
Spectronic 20 is a new combination instrument for laboratory application to performs routine colorimetric analysis and for research and quality control. The operator can adjust a defraction grating for any wave length from 375 to 950 millicrons. Routine analyses are performed by passing light of known wave length through a sample. Concentration readings are interpreted from predetermined calibrations.

The sample is subjected to light of varying wave lengths to get transmittance and density readings for interpretive analysis and for construction of transmission and absorptive curves when the instrument is employed as a spectrophotometer. Basic components of the instrument are a built-in grating monochromater, a photoemissive detector and a printed circuit electronic amplifier. Assembly is on a rigid die cast base under a one piece housing. A methods manual has been published to describe 41 different analytical procedures.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9566

If you write maker identify as IEN - 9567



NEW Remote Control Relay System has many industrial uses

● Originally designed for residential applications, this new, Low Voltage Control System has dozens of industrial applications. Relays are controlled from any number of conveniently located switches operating on 24 volts. Only the load circuit is at 120 volts.

Write for Bulletin 1124. Square D Company, 6060 Rivard Street, Detroit 11, Michigan.

SQUARE D COMPANY

If you write maker identify as IEN - 9568

SATISFACTION GUARANTEED and YOUR MONEY BACK

Faster, neater bagging . . . at lower cost . . . pays you many times the price of this easy-to-use bagger. Blower opens bag; your operator fills and removes it in one swift motion. Adjustable for bags from 2¾ to 5 inches wide and 5¾ to 7½ inches high. Glad to quote for other sizes or cellophane.

TRIAL OFFER

Use this bagger a full week. Be 100% satisfied or return it for refund.

Just send samples of your bags and ask for Bulletin 9-35

$65 complete, f. o. b. Rockford

Anderson
ANDERSON BROS. MFG. CO.
ROCKFORD, ILLINOIS

If you write maker identify as IEN - 9569

HERE'S THE ANSWER TO YOUR CONTROL CABLE PROBLEMS

Okonite's Bulletin IE-1056 contains the information you need on design, construction and installation of rubber-insulated control cables. The physical properties, characteristics, and dimensions of Okolite-Okoprene Control Cables are fully detailed. Write for your copy or for further information. The Okonite Company, Passaic, N. J.

OKONITE insulated cables

2570

If you write maker identify as IEN - 9570

A NEW STANLEY® BUILDERS SAW

Here's a new Stanley builders saw that cuts 2 x 4's at 45° and only weighs 12 lbs. Its 7" blade takes a deep 2⅝" bite at 90° and bevels at any angle up to 45°. Furnished with metal carrying case.

CHECK THESE OUTSTANDING STANLEY FEATURES:

1. Patented Stanley blade flanges that protect the motor from shock loads.
2. Cutaway window lets you see what you're cutting.
3. An automatic telescoping safety guard with convenient finger knob control.

$79.50

The W70

OTHER STANLEY SAW ADVANTAGES

Housing—Fully polished die cast aluminum alloy
Gears—Alloy steel
Bearings—Full anti-friction
Switch—Double pole, momentary contact
Handle—Pebbled, non-slip surface, "multi-grip"
Speed—5200 r.p.m.
Service—Stanley Service Station near you

See This New Stanley Saw
Try the heft and cut of it. Your Stanley distributor has them now. For further information write Stanley Electric Tools, 229 Myrtle St., New Britain, Conn.

STANLEY ELECTRIC TOOLS
STANLEY — HARDWARE TOOLS, STEEL STRAPPING, STEEL

If you write maker identify as IEN - 9571

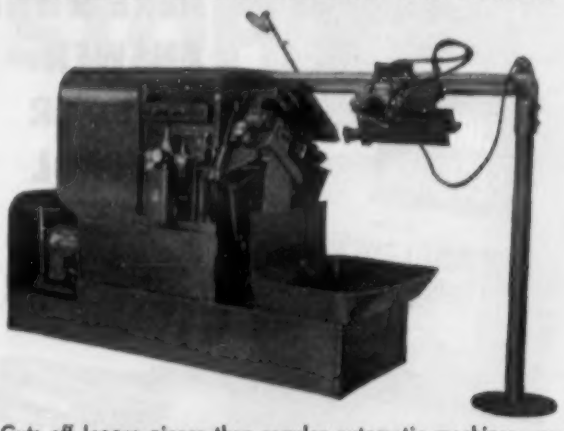
FOR THE FINISHING TOUCH

You can't beat this new 6-72 Vonnegut Abrasive Belt Grinding and Polishing Machine for cutting weld seams and burrs, and removing finish blemishes, etc. Light — but rugged . . . and well balanced . . . easily manipulated when arranged as a *swing machine*. It also can be supplied as a *floor stand* or as a *lathe attachment*. Because of its great versatility, the machine has proved its value for "special" applications too — and it may suggest an entirely new application in *your* plant. If so, write us about it — we'll be glad to help you solve the problem and supply the details for efficient production. Send for Bulletin No. 62.

Grinding and Polishing Machinery Corp.
SUCCESSORS TO VONNEGUT MOULDER CORPORATION
2530-D WINTHROP AVE., INDIANAPOLIS 5, IND., U. S. A.

If you write maker identify as IEN - 9572

MODERN CUTTING-OFF MACHINE



Cuts off longer pieces than regular automatic machines—*any length you want*. FAST cutting and chamfering of tubing, pipe, shafting. Check the following figures:

½" Tubing — Cuts and Chamfers both outside edges of ½" .030 wall tubing, 5" lengths, every 2.5 seconds.

1¼" Cold Rolled — Cuts and Chamfers both ends, 20" long, at rate of 1 every 20 seconds.

1" Tubing — Cuts and Chamfers both outside edges, pieces 3" long. One every 3 seconds.

These popular time saving machines are now available in 4 sizes, handling work up to 6⅝" O.D.

4" THREADED STUDS

Cut and chamfered at one time—in 8 Sec.—from 10 ft. length of stock already threaded (⅝" U. S. Standard). Clean cut. Clean chamfer. Nuts start easily with no extra finishing required.

Write for Catalog

MODERN MACHINE TOOL CO.
JACKSON, MICHIGAN

If you write maker identify as IEN - 9573

Conveying - Hopper fed equipment elevates and distributes work pieces

Source: INDUSTRIAL HEATING CO.
3574 Fremont Place, Dept. IEN, Detroit 7, Mich.

Details on request

Metering Loader designates this new motor driven equipment to handle a wide variety of work pieces at required rates between 100 and 5,000 lb. per hour. The rate is selected by adjusting a variable speed drive having a 20 to 1 variation. The equipment wil handle work pieces as small as 1/16 in. in thickness or diameter. It will distribute the work evenly across the width of a conveying mechanism to which it is delivering.

The standard hopper holds about 1,000 lb. based on average size bolts weighing about 200 lb. per cubic foot. Special assemblies can be built to meet specified requirements and the equipment can be employed as an elevator only.

If you write maker identify as IEN - 9574

Signaling - Television camera reproduces observed remote conditions

Source: DIAMOND POWER SPECIALTY CORP.
E. Main St., Dept. IEN, Lancaster, Ohio

Bulletin 1175

Series 400 is a new camera in the company's UtiliVue line of closed circuit television equipment. It can be used with a video monitor or with a standard television receiver. It can be tuned to any channel from 2 to 6. Controls and power supply are built into the camera with voltage regulation and automatic illumination compensation.

The camera is available with a Diamond Utilicon cold cathode tube or with a Vidicon type pick-up tube. Multiple receiving points can be fed. The Vidicon type unit measures 7 by 8 by 19 inches. Operation is on 110-volt 60-cycle ac.

If you write maker identify as IEN - 9575

Marlow Pumps, Box 566, Dept. IEN, Ridgewood, N. J., is now manufacturing an 8½-hp. engine driven portable centrifugal pump for use by fire departments. The pump develops sufficient capacity and pressure to operate one 2½ in. or two 1½-in. hose lines. The unit is assembled on a welded steel base that is equipped with spring loaded retractible handles, measures about 22 in. in length by 21 in. in width by 22 in. in height and weighs 160 pounds. The pump will relay enough water through 300 ft. of 2½-in. hose, up a 75-ft. hill, to supply a pumper operating two ½-in. nozzles at 100-lb. pressure.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9576

A PAID NEWS ADVERTISEMENT BY SOLA ELECTRIC CO.

REGULATED POWER SUPPLY for Plate and Filaments

The Sola Type "CVE" Constant Voltage Transformer delivers filament and plate voltages regulated within ±3% or less, with line voltage variations of 100-130 volts. All windings are on the same core, providing a compact moderately priced unit. Available from electronic distributors in three capacities: 42 va, 75 va, and 210 va. Like all Sola constant voltage transformers, they are completely automatic, instantaneous, and continuous in regulation . . . have no moving parts or tubes and are self-protecting against short circuit. These Sola Constant voltage Power Supply Transformers are made for chassis mounting. For further information write for bulletin 131-CV-170. **SOLA ELECTRIC CO., 4633 West 16th Street, Chicago 50, Illinois.**

If you write maker identify as IEN - 9577

One minute with your phone book can

SPEED HANDLING IN YOUR PLANT

When you have a materials handling problem call your Nutting Sales Engineer. He has the answer in the most complete line of Floor Trucks in America. He's backed by 63 years of materials handling know-how and a range of 1000 models and sizes. You'll get perfect adaptability for the job, easier handling, longer life and minimum maintenance.

NUTTING HAND & FLOOR TRUCKS
Trucks for all material handling requirements. Over 1,000 Standard and Special Designs — Platform, Stake, Rack, Box, Shelf, 2-Wheel Rubber Tired Wheels, Casters.
"WHERE TO BUY THEM"

Look up your Nutting Sales Engineer under "Casters" or "Trucks" in your classified directory, or write direct.

Nutting — Since 1891

NUTTING TRUCK AND CASTER CO.
2015 Division Street, Faribault, Minn.

Export Sales Rep.: School International, Inc. 4237 No. Lincoln Ave., Chicago 18, Ill.

If you write maker identify as IEN - 9578

IN service today are electrically heated Sta-Warm tanks of 100, 200, 400 gals. or more capacity and they are operating with complete satisfaction to their users.

The "STA-WARM METHOD" of designing and building compound melters is so simple, so flexible and so adaptable to any *practical* capacity that each new and larger installation is just another readily solvable problem. So . . . the "world's largest" model might be many years off.

You may not need the world's largest compound melter . . . but what ever size you do need is either:

a) a standard Sta-Warm model, or
b) a special designing job in which Sta-Warm engineers will tailor the tank to your special requirements.

There is no more efficient way to melt compounds or to convey and dispense them at the point of application *than the Sta-Warm way.*

Inquire today, outlining your current needs.

Sta-Warm ELECTRIC CO.
560 N. CHESTNUT ST., RAVENNA, OHIO

If you write maker identify as **IEN - 9580**

If you write maker identify as **IEN - 9581**

This Switch CUTS { METAL MAN HOURS OPERATING COSTS

● Shown here is a combination roller-leveling and cut-to-length machine on which a MICRO SWITCH heavy duty limit switch is installed.

"This switch not only dispensed with the need of one man, but speeded up the operation of the machine by some ten to fifteen per cent," say the plant operating people.

The switch, which operates the cutter, is set at the proper length, and as the flattened stock strikes the switch, the shear cuts the metal. Only function of the operator is to unload the cut pieces.

Plant operators, maintenance men, electricians are constantly finding new ways to make present equipment more automatic through the use of MICRO SWITCH precision switches. This makes them safer to operate and increases production.

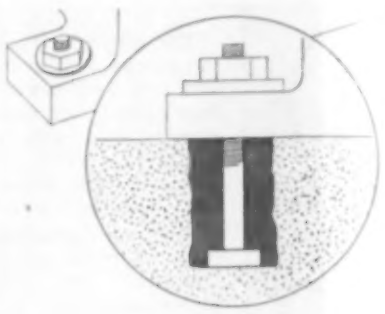
MICRO SWITCH distributors, with full stocks of the switch types which have proved most useful in plant applications, are located near you. Look in the yellow pages of your phone book under "switches, electric." MICRO SWITCH switches can cut your operating costs, too.

MICRO SWITCH
A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
FREEPORT, ILLINOIS

If you write maker identify as **IEN - 9583**

Fastening - Powdered material secures anchor bolts in concrete floor

Source: ROCK-TRED CORPORATION
7440 N. St. Louis Ave., Dept. IEN, Skokie, Ill.



Bulletin AS99

Ankor-Set is a new powdered material to mix with water and pour into a hole in a concrete floor in which an anchor bolt is to be set. The material sets hard in 30 minutes. It forms a bond that becomes an integral part of the floor. It is particularly suited to permanently anchor equipment of various types and also to patch holes and cracks in concrete floors and walls. Packaging is in 50, 125, and 300-lb. fiber drums.

If you write maker identify as **IEN - 9584**

Pipe - Polyvinyl chloride plastic made in ½ to 4 in. sizes

Source: WILMINGTON PLASTICS INC.
810 S. Heald St., Dept. IEN, Wilmington 1, Del.

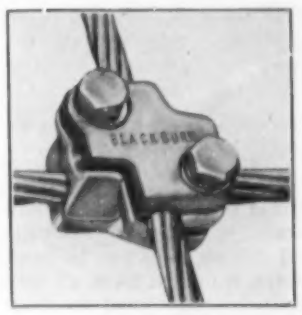
Technical data upon request

Standard and extra heavy weights, to conform with Schedules 40 and 80 American Standard are available in ½ to 4-in. sizes in the company's new line of Duravin rigid unplasticized polyvinyl chloride plastic pipe. Wall thickness ranges from 0.109 to 0.237 inch. Weight per hundred feet is 14½ to 184.3 pounds. Recommended safe working pressure is 300 to 100 lb., all for the standard weight. Wall thickness ranges from 0.147 to 0.337 in. in the extra heavy size and weight per hundred feet is 18½ to 256 pounds. Working pressure is 400 to 175 lb. at room temperature.

If you write maker identify as **IEN - 9585**

Connector - Cross tap clamp made in eight sizes for electric cable

Source: JASPER BLACKBURN CORPORATION
35 Madison St., Dept. IEN, St. Louis 6, Mo.



Bulletin XT

Eight connectors for cable sizes from No. 6 to 1,000 mcm. are included in a new Cross Tap line to provide for quick service connection to an electric cable. The connector is made of copper alloy and is fitted with bronze bolts and bronze Shakeproof lockwashers. The edges are rounded to assist in taping.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as **IEN - 9586**

If you write maker identify as **IEN - 9587**

If you write maker identify as **IEN - 9588**

White plastic coated, liquid-proof Sani-Gluv

Safety-grip work gloves

Job-fitted gloves reduce costs

Heat, cold and chemical resistant types

Better work handling, fewer accidents *and 40% to 70% savings in glove replacement costs* can be obtained by replacing canvas and leather with modern coated work gloves which *fit the job.*

Test Offer to Employers

Send description of your operation. Without charge we will forward samples of correct gloves for testing on-the-job.

Edmont Manufacturing Co.
1226 Walnut St., Coshocton, Ohio
Leading industrial distributors carry Edmont gloves in stock

Edmont JOB-FITTED GLOVES

If you write maker identify as **IEN - 9589**

with a LINK-BELT Car Spotter

ONE man . . . two or three turns of rope around the motor-driven capstan . . . and up to six loaded cars are spotted accurately in seconds. Pays for itself in reduced switching and demurrage charges. Can also be used for quick, easy moving of heavy vehicles, skids, barges, etc.

Get the complete story. WRITE TODAY!

LINK-BELT COMPANY
307 N. Michigan Ave.,
Chicago 1, Ill.

Please send me 24-page illustrated Book 2092.

Name .....
Firm .....
Address .....
City ..... Zone .... State .....

If you write maker identify as IEN - 9590

THE CAMBRIDGE

INDUSTRIAL MODEL DIRECT READING

pH METER

- Operated from any AC outlet
- Completely portable. Weighs only 10 lbs. Electrodes are integral parts of the instrument.
- Accurate to .10 pH.
- Shielded glass electrodes permit use of electrodes at any distance from the instrument.
- May be used on a bench or wall mounted.
- Self contained in one metal case including electrodes and buffer solutions.
- Extremely stable.
- Automatic temperature compensation.

Send for bulletin 910-NA.

Also available: Electron-Ray Research Model accurate to .02 pH Laboratory Model accurate to .05 pH and Single- and Multi-point recorders.

CAMBRIDGE INSTRUMENT CO., INC.
3710 GRAND CENTRAL TERMINAL NEW YORK 17, N. Y.
Pioneer Manufacturers of
PRECISION INSTRUMENTS

If you write maker identify as IEN - 9591

Eclipse announces new line of simplified solenoid valves!

Dependable operation and low maintenance are features of this new simplified Eclipse "DO" Solenoid Valve. Only three moving parts. Easy to service without breaking line connections. Positive shut-off provided by soft, synthetic rubber diaphragm. Low power requirements. No "Jamming." Control air, water, oil, freon, sulphur dioxide, and fuel gases—line pressures to 150 psi. Write for Bulletin M-500.

Eclipse Valves—For information on the complete line of Eclipse Valves for safety shut-off and combustion control, write for Bulletin "M".

Eclipse

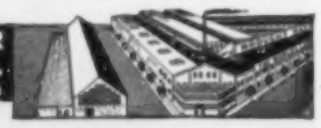
ECLIPSE FUEL ENGINEERING CO., Rockford, Ill.
Eclipse Fuel Engineering Co. of Canada, Ltd., Toronto, Ontario

If you write maker identify as IEN - 9592

Geared to Industry's Production Demands Since 1887

Offering the most complete line of washers available today . . . all types and sizes, all materials, all finishes. More than 25,000 sets of dies. Let us quote on your requirements.

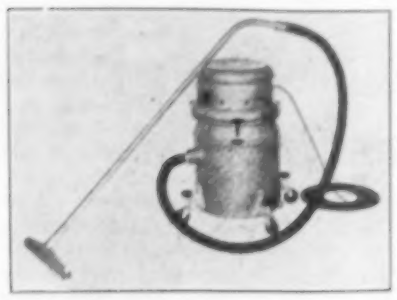
WROUGHT WASHER MANUFACTURING CO.
The World's Largest Producer of Washers
2207 S. BAY ST., MILWAUKEE 7, WIS.



If you write maker identify as IEN - 9593

Cleaning - Portable vacuum machine designed for wet or dry pick-up service

Source: KENT COMPANY
437-C Canal St., Dept. IEN, Rome, N. Y.



Bulletin, "Jumbo Unit"

The motor driving the suction blower in this new Jumbo vacuum cleaner is a universal design rating 1 hp. for operation on ac. or dc. The motor is equipped with 40 ft. of 16-gage three-conductor Type-SJ cable. Its direct connected blower rates 180 cfm. with average water lift in closed position of 67 inches. A separate current is employed to cool the motor so it cannot be damaged by moisture in the air stream.

The machine rates 1½ bu. of dirt or 9 gal. of water. The dirt is collected in a disposable paper filter bag. The machine weighs 66 lb. and is mounted on four 3-in. ball bearing casters. These casters offer negligible resistance to movement as the operator pulls the machine along with the hose.

If you write maker identify as IEN - 9594

Bulletin Board - Made of mahogany for installation in plant or office

Source: INDUSTRIAL PRODUCTS CO.
2677 N. 4th St., Dept. IEN, Philadelphia 33, Pa.

Special sizes to order

Style 70 is a new cabinet type bulletin board measuring 28 by 35, by 4 in. in inside depth. It employs a cork posting surface back of a hinged glass door. It can be mounted singly or in any number of units side by side. The sign panel, at the top of the door, is white opaque plastic and is available with specified wording. A concealed fluorescent lamp provides light through the sign panel and over the inner area.

If you write maker identify as IEN - 9595

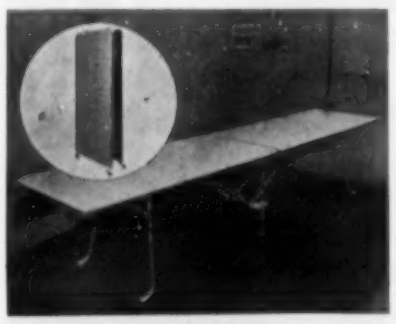
Broken end mills, sharpened down milling cutters, worn out counterbores, obsolete slitting saws are representative tools that can be reconditioned upon sending them to Manufacturers Cutter Corp., 275 Jefferson St., Dept. IEN, Newark 5, N. J. Flutes are re-cut. Special cutting tools can be made from the solid or reworked from the standard tools, all on a contract basis. The company has prepared literature under the subject, "New Tools from Old Tools". A copy is available on request.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9596

A PAID NEWS ADVERTISEMENT BY SEATING, INC.

CAFETERIA SEATING . . . folding table seats more, stores easily in less space



Sico "L-B"

Seating space has been increased, storage area decreased and simplified set-up improved in the new model Sico "L-B" table designed for use in multi-purpose rooms and cafeterias by Seating, Inc., national manufacturers of folding tables and seating equipment in Minneapolis, Minnesota.

Seven 12-foot "L-B" tables store in a 30" by 71" space, as compared to the 30" by 74" space required by twelve traditional 6-foot folding leg tables, thus storing twelve extra lineal feet of table area with the Sico units.

Constructed of arc-welded structural steel tubing, the table features the patented "Floating Fold" action that permits rapid, non-tip set-up by one person and eliminates hinges that pinch fingers and collect food and moisture. One of the major faults of other rolling tables, "traveling," has been eliminated in the "L-B". Two thick rubber pads resist skidding when the table is unfolded.

The table top is of ¾" plywood, urea bonded with hardwood facing, and has a plastic laminated-bonded surface that resists cuts, stains and abrasions. Height above the floor is 29" and area is 30 square feet.

For additional information and prices on the Sico "L-B" table, write Seating, Inc., 6045 Pillsbury Ave., S. Minneapolis 19, Minnesota.

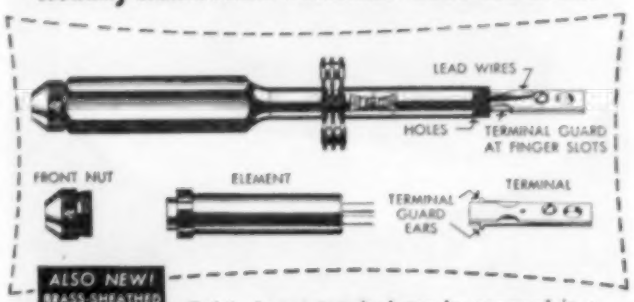
If you write maker identify as IEN - 9597

NOW! CHANGE SOLDERING IRON ELEMENTS *IN A JIFFY!*

—with HEXACON

*Patent Applied For

Readily Removable Terminal* does the trick!



ALSO NEW!
BRASS-SHEATHED ELEMENTS
Easier to Replace—Better Protection

Write for catalog showing 40 industrial soldering irons of every type and size.

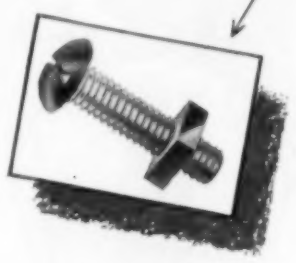
Quick-change terminal can be removed in a second or two, permitting replacement of element in a fraction of the usual time. By simply depressing terminal guard at the finger slots, the terminal comes out in a jiffy — no longer necessary to fish element lead wires around terminal.

HEXACON — Industry's No. 1 Soldering Iron

HEXACON ELECTRIC COMPANY
155 W. CLAY AVE., ROSELLE PARK, NEW JERSEY

If you write maker identify as IEN - 9598

WHY *Southern?*



BECAUSE SOUTHERN SCREWS ARE WHAT YOU WANT . . . WHERE AND WHEN!

Southern's wide range of screw sizes and styles *in stock* assure you the exact screw for your individual need. Now many "specials" are available as standard, backed by prompt shipment and dependable Southern service.

Slotted steel stove bolts in round and flat head styles, diameters: ¼" through ⅜"; lengths: ⅜" through 3". Phillips and slotted wood screws available in widest range of sizes and finishes.

Write for free samples and special information. Box 1360-E.

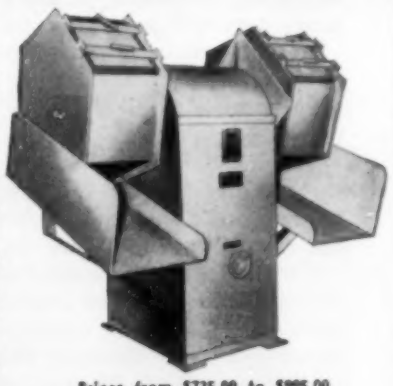
SOUTHERN SCREW COMPANY
STATESVILLE, NORTH CAROLINA WOOD SCREWS • STOVE BOLTS
Factory Warehouses: NEW YORK, NEW YORK • CHICAGO, ILLINOIS
LOS ANGELES, CALIFORNIA • DALLAS, TEXAS

If you write maker identify as IEN - 9599

NEW! RAMPE TWIN PRECISION BARREL FINISHER

Super Twin With Double Capacity

Provides larger volume capacity—4 cu. ft. (2 cu. ft. per barrel). Sturdily built and powered by a ¾ H.P. 220/440 volt, 3-phase motor — Variable speed drive — Barrels can be vinyl plastic lined, if desired. Movable chutes act as safeguards when tilted to the rear. Tote boxes can be furnished in place of movable chutes.



Prices from $735.00 to $995.00 depending upon equipment.

OTHER RAMPE BARREL FINISHERS

Three other Rampe Barrel Finishers are available—2 single units and 1 Twin model. They range in price from $99.50 to $685.00, depending upon size and equipment.

Send for literature on the complete Rampe Line.

RAMPE MANUFACTURING CO.
3320 ST. CLAIR AVE. CLEVELAND 14, OHIO

If you write maker identify as IEN - 9600

A DERBY FIRST
Stainless steel cut-off blade, guaranteed for life of machine.

MOST TALKED ABOUT GUMMED TAPE DISPENSER ON THE MARKET!

Derby spent 2 years designing, building and testing the fabulous Super "152". It's a rugged, efficient, gummed tape dispenser with so many big machine features, so many unusual Derby exclusives, that its low price is truly sensationall Dispenses 1" to 3" width tapes in predetermined lengths up to 30".

See your dealer or write Dept. IF

DERBY SEALERS INC. Derby, Conn.

If you write maker identify as IEN - 9601

For Tractor Trailer Operation

2-TON HEAVY-DUTY INDUSTRIAL TRAILER

This Thomas "GENERAL" is doing a thousand heavy-duty jobs all over the world—in freight stations, warehouses, industrial plants, wherever a staunch, easy-running, caster-type trailer of time-proved design is needed. Rugged. 4000 lbs. capacity. Foot operated release disengages Safety Automatic Coupler quickly, safely from either side. Available with chemical resistant tires.

Send for free literature

THOMAS TRUCK & CASTER CO.
530 Mississippi River
Keokuk, Iowa

Thomas JAK-TUNG One-Handling System

TRUCKS & STORES LOADS WITHOUT UNLOADING

This double-purpose truck is designed for use with power truck or hand lift. When loads are to be moved long distances, a power lift platform or fork lift truck is used. For short hauls, spotting of loads and handling in close quarters, the JAK-TUNG Lift Unit is best. Either way loads can be trucked and stored without costly rehandling. Available with chemical resistant tires and "Job Suited" superstructures.

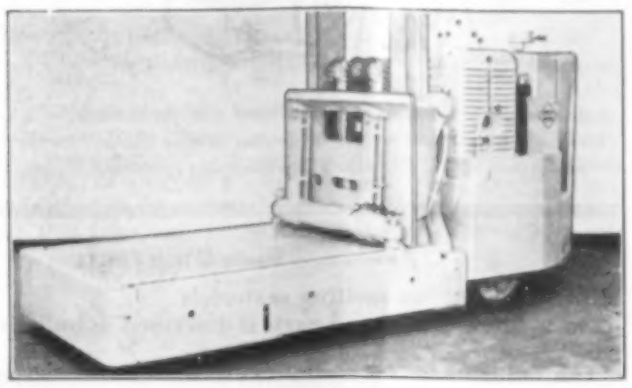
Send for free literature.

THOMAS TRUCK & CASTER CO.
530 Mississippi River, Keokuk, Iowa

If you write maker identify as IEN - 9602

Truck - Power lift platform unit with hydraulic die handling mechanism

Source: ELWELL-PARKER ELECTRIC CO.
4205 St. Clair Ave., Dept. IEN, Cleveland 3, Ohio



Accurate and effort free

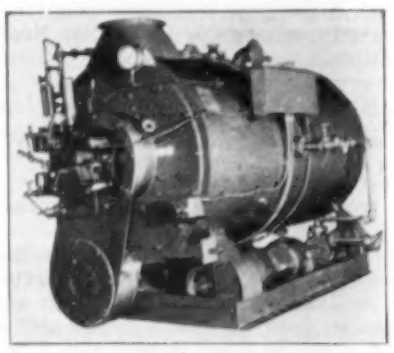
Illustrated is Model E-12-30, a 15-ton typical assembly in the company's new line of die handling trucks. It mounts a platform 94 in. in length by 63 in. in width. It will lift or lower the platform in a range between 22 and 60 in. above the floor. The truck measures 180 in. in overall length and will turn in 107-in. intersecting aisles. Control centers at an assembly of levers at the operator's position. Hydraulic power steering connects to all four wheels.

Pusher arms project upward through slots on the two sides of the platform and are connected into the truck's hydraulic circuit so they can be operated independently or simultaneously in steady movement or in "inching" action. A die can be pushed off square or diagonally so it is not necessary to line the platform square with a machine bed. Extension pusher fingers are located on a cross tube between the two heads to assist in the handling action. They can be hinged upward, when they are not required, as shown in the illustration. The heads can be employed for pushing or pulling, to place or remove a die at a press or at a storage location.

If you write maker identify as IEN - 9603

Boiler - Self-contained design rates 250 bhp., is oil or gas fired

Source: CYCLOTHERM DIVISION
163 E. First St., Dept. IEN, Oswego, N. Y.



Cyclonic combustion

Small size characterizes the construction of this new self-contained fire tube boiler. It measures about 9½ ft. in length by 6 ft. in width. It stands 6 ft., 8 in. in height. It can be specified to burn either oil or gas, or both interchangeably, and is designed to operate at 15 to 200 pounds. Maximum guaranteed delivery is 7,500 lb. of steam per hour. Normal capacity is 6,250 lb. per hour.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9604

NEW! LOW PRICE MOBILE TANK SPRAYER

No. 450 Complete Outfit
$169.00
With rubber tired wheels and rubber pads, internal mix spray gun, tire chuck and air hose.

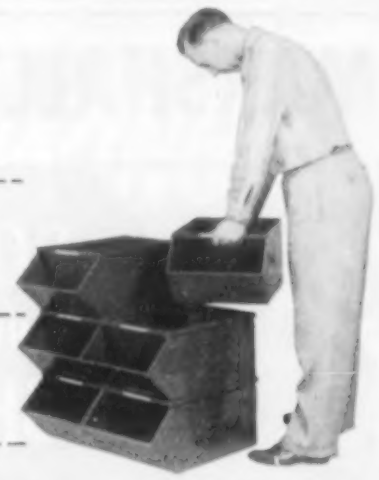
Automatic pressure switch starts motor when pressure in tank drops to 30 lbs.—shuts off at 45 lbs. Twin compressor mounted on heavily welded 11½ gal. tank delivers 4 cu. ft. of clean, oil-free air per minute. Equipped with ½ h.p. A.C. motor, factory lubricated. Dozens of handy maintenance and production uses. Ask your mill supply house or write direct for catalog.

Write today for catalog
Compressors High & Low Pressure
Paint Sprayers
Spray Guns

W. R. BROWN CORP.
2671 N. NORMANDY AVE., CHICAGO 35, ILL.

SPECIALISTS IN PORTABLE SPRAYERS FOR OVER 20 YEARS

If you write maker identify as IEN - 9605



Save **TIME**

Save **SPACE**

Save **LABOR**

Easy-to-store, easy-to-stack, easy-to-handle STACKBINS® speed and simplify parts and materials handling.

In Production: STACKBINS carry parts between operations.

In Assembly: STACKBINS replace open pans and boxes.

In Storage: STACKBINS keep parts instantly accessible — eliminate waste motions — stack solidly, compactly to form units tailored to your space limitations and capacity requirements.

Heavy, all-welded steel. Seven standard sizes from 3½" x 6" x 3¼" to 15" x 24" x 11". Special purpose STACKBINS also available.

WRITE TODAY FOR FULL INFORMATION.
Stackbin Corporation, 1077 Main St., Pawtucket, R. I.
Mfgd. & Sold exclusively in Canada by: Wickware-Stackbin, Ltd., Ottawa

STACKBIN® SYSTEM
"Stacked and Still Accessible"

If you write maker identify as IEN - 9606

Linde synthetic sapphire

...for excellent optical transmission

PLUS physical strength and chemical inertness

Sapphire is hard, strong, chemically inert and transmits a high percentage of radiation in the important ultra-violet and infra-red regions. At 1750A forty per cent of the radiation is transmitted by a .059 inch section; at 5.7 microns forty per cent is transmitted by a .100 inch section. This unique combination of properties makes it ideal for optical systems that require resistance to abrasion and corrosion and high temperature strength as well as excellent optical transmission.

Now single-crystal sapphire windows are available in diameters up to 2 inches in several finishes. For further information, call or write your nearest LINDE office.

LINDE AIR PRODUCTS COMPANY
A DIVISION OF UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street, New York 17, N. Y. UCC Offices in Other Principal Cities

In Canada: DOMINION OXYGEN COMPANY
Division of Union Carbide Canada Limited, Toronto

"Linde" is a registered trade-mark of Union Carbide and Carbon Corporation.

If you write maker identify as IEN - 9607

STEEL TUBING USERS—

Get new working guide FREE

If you use steel tubing of any kind—you'll want this new tubing data folder prepared by Frasse. It covers in detail steel tubing of *every* description—gives analyses, size ranges, mechanical and physical properties, fabricating hints and ideas for end uses. This new Frasse tubing data folder is packed with easy-to-find facts about steel tubing of *all* kinds. Included are:

- Seamless and Welded Mechanical Steel Tubing
- Pressure Tubing • Condenser Tubes • Hydraulic Tubes
- Aircraft Quality Steel Tubing—AISI 1010 and AISI 4130
- Centrifugally Spun Steel Tubing
- Hot Rolled Large Diameter Tubing and Pipe
- Swepco Large O.D. Tubing and Pipe • Capillary Tubing
- Hypodermic Needle Tubing • Bourdon and Shaped Tubing
- Stainless Steel Tubing, Pipe, Fittings and Valves

Edited by Frasse engineers, this collection of pinpointed tubing facts will help show you how to profit with tubing in your product. For your free copy, send your inquiry today.

Peter A. FRASSE and Co., Inc.
17 GRAND STREET, NEW YORK 13, N. Y. • WAlker 5-2200
LYNDHURST • PHILADELPHIA • BUFFALO • SYRACUSE • HARTFORD

If you write maker identify as IEN - 9608

MARSHALLTOWN

Capacities from 18 Gauge to ½"
Cuts any SIZE . . . any SHAPE

America's finest for every cutting job—straight, irregular or circular patterns.
Speedy—up to 6 ft. per minute. Efficient, easy to operate.
Built for extra heavy duty use. High grade tool steel cutters.

Write today for details and prices.

MARSHALLTOWN MFG. CO., Marshalltown 1, Iowa

If you write maker identify as IEN - 9609

how 10 characteristics of

GAST rotary AIR MOTORS

solve tough original equipment problems

Just one of these ten inherent advantages of Gast rotary Compressed Air Motors may solve knotty problems on your original equipment applications.

1—Low first cost. 2—Explosion-proof safety. 3—Variable speed. 4—Can't burn out from overloads or stalling. 5—Four vanes — instant starting. 6—Amazing compactness for HP. 7—Light weight —to ¼ of electric motor. 8—Smooth rotary-vane ball-bearing performance. 9—Reversible models. 10—Dependability for long service.

Now standard equipment on many products. Four sizes, many design variations. Vertical or horizontal drives; base or flange mountings.

INVESTIGATE NOW!

WRITE GAST for Air Motor Bulletins. Request "Ideas" Booklet.

Original Equipment Manufacturers for Over 25 Years

GAST ROTARY — AIR MOTORS (TO 4 H.P.) · COMPRESSORS (TO 30 LBS.) · VACUUM PUMPS (TO 28 INCHES)
GAST MANUFACTURING CORP., 119 Hinkley St., Benton Harbor, Mich.

If you write maker identify as IEN - 9610

Drown Fire Hazards With

DUNKING STATIONS

Cigarets, Cigars Matches, Etc., Immediately Extinguished!

It's not the cigaret or cigar that's being smoked that causes fires—it's after they're discarded and forgotten that they become a terrible fire hazard!

SIPCO DUNKING STATIONS end this fire hazard once and for all by immediately drowning every last dangerous spark.

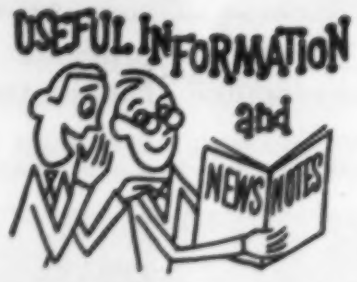
Built of rugged heavy cast aluminum, they are designed to hold water for this purpose—and they can never rust through or wear out! GUARANTEED NOT TO BREAK!

Although they are built for heavy industrial use—and abuse—you'll find that your employees will use—not abuse these DUNKING STATIONS!

UNIT NO. 1—Canister, sign, upright & base.
UNIT NO. 2—Canister & sign (illustrated).
UNIT NO. 3—Canister alone.

Write for Descriptive Literature

STANDARD INDUSTRIAL PRODUCTS CO.
116 South Garfield Ave. Dept. N Peoria, Illinois



The following descriptions are published with the understanding that the material is available on request without charge. We do not forward inquiries for descriptions specifying letterhead request.

If you write maker identify as IEN - 9611

Alloys—Use of low-melting materials to anchor bearings and parts is described in bulletin

Low melting point and ability to expand when solidifying are properties of the company's bismuth alloys. Bulletin A-1, 4 pages, tells how the alloys are used to anchor bearings, bushings and non-moving parts in machinery. One such use is to secure permanent magnets in work-holding fixtures. Cerro de Pasco Corp., 40 Wall St., Dept. IEN, New York 5, N. Y.

If you write maker identify as IEN - 9612

Aluminum—In heat exchanger tubes is the subject of new 24-page technical bulletin

A for Acetaldehyde to X for Xylene is the range of materials handled in aluminum heat exchanger tubes, detailed in new Bulletin AD-186. Reasons for using aluminum, clad and non-clad tubes, processing applications, alloy recommendations, weight and working-pressure tables, heat-transfer characteristics, are among the information presented. Aluminum Company of America, 1501 Alcoa Bldg., Dept. IEN, Pittsburgh 19, Pa.

If you write maker identify as IEN - 9613

Cleaning—Booklet on vapor degreasing shows correct and incorrect methods of operation

Captioned drawings show right and wrong methods in new 24-page "Vapor Degreasing Do's and Don'ts" for degreaser machine placement, operator working height, solvent level, starting and stopping, proper vapor height, operating speed, spraying, load size, drainage. Other drawings are on methods of cleaning the equipment. A two-page trouble-shooting chart is included. Manufacturers Processing Co., 1360 Hilton Road, Dept. IEN, Detroit 20, Mich.

If you write maker identify as IEN - 9614

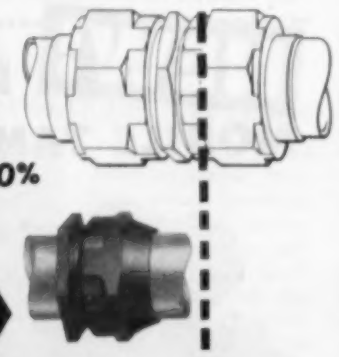
Compressors—New series of data sheets give reasons for trouble in equipment operation

"Trouble Savers" titles new series of data sheets intended to assist you in determining why equipment is not working properly. Sheet PC-306, for example, lists troubles in air and water-cooled air compressors from "failure to deliver air" to "unit blows fuses." Other sheets cover pumps and V-belt drives. Your name will be added to the list to receive these and future issues. Worthington Corp., 423 Worthington Ave., Dept. IEN, Harrison, N. J.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9615

Reduce "AN" Coupling Size & Weight by more than 50%



with

RUBBER TECK'S RIGID, LIGHTWEIGHT DUCT CONNECTOR

Other RUBBER TECK PRODUCTS
- Flexible Breakaway Connectors
- Flexible Hot Air Duct Connectors
- Flexible Fluid Line Connectors
- Duo Seals

COMPARATIVE SIZE AND WEIGHT REDUCTIONS

"AN" DESIGN	RUBBER TECK DESIGN
Overall length (2" dia.) ....5.25 in.	(2" dia.) .....2.00 in.
Number Parts 5	 3
Weight .....1.66 lbs.	.....0.53 lbs.
Material .....Aluminum	.....Aluminum
Also available in stainless steel.	

RUBBER TECK, Inc. GARDENA, CALIFORNIA

Write for data sheets on the complete line

ENGINEERING SERVICE REPRESENTATIVES:

RUBBER TECK SALES & SERVICE CO.
8479 Higuera St., Culver City, Calif. Texas 0-6836
5439 Harford Rd., Baltimore, Md. Clifton 4-9671
60 East Bridge St., Berea, Ohio Berea 4-7837

THOMSON ENGINEERING SERVICE
554 Summit, Fort Worth, Texas
723 Broadway, Wichita, Kansas
4378 Lindell, St. Louis, Missouri

RANDALL ASSOCIATES, INC.
Room 203, White Bldg.
Seattle, Wash.

If you write maker identify as IEN - 9616

OVENS for INDUSTRY

Range—Room Temperature to 600° C.

SPECIFY Hotpack — Temp. Dif. .5° C.

HIGH TEMP. BATHS for Tempering Metal Cleaning
•
ELECTRIC FURNACES
•
OVENS 12 to 250 cu. ft.
•
TEST ROOMS
•
STERILIZERS
•
STILLS

HOTPACK forced draft ovens permit large loads and quick treatment with each article receiving the same amount of heat.

No. 1412

The units are especially effective in baking, sterilizing, heat treating and conditioning, dehydrating and aging, where uniform temperatures of heavy loads or large quantities are required.

Capacities 12 cu. ft. to 250 cu. ft.

Send for Catalog

THE ELECTRIC Hotpack COMPANY, Inc.
5049 COTTMAN STREET, PHILADELPHIA 35, PA.

If you write maker identify as IEN - 9617

This magnifier is a favorite in toolrooms

Write today for tell-all handbook and catalog, "INDUSTRIAL MAGNIFIERS, HOW TO CHOOSE AND USE THEM"

Combines extremely wide field (2¾") with moderately high magnification (3.5X). Double lenses for reducing aberration. Easy to hold, tough plastic mount. Only $3.60 at leading industrial suppliers. See complete line $1 to $25. Bausch & Lomb Optical Co., 51533 Bausch St., Rochester 2, N. Y.

BAUSCH & LOMB—
Industrial Magnifiers

If you write maker identify as IEN - 9618

Indus Wheels Solve Wheel Problems

Send for SPECIFICATIONS and PRICES

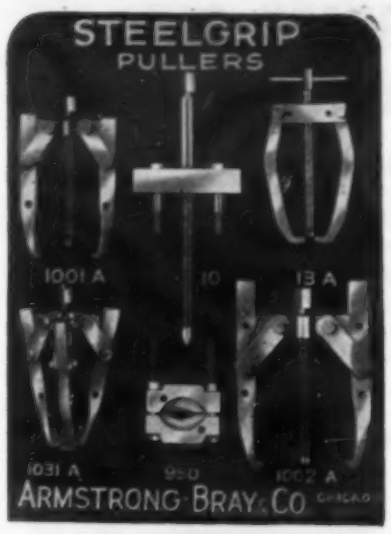
Dimensions May Be Varied To Your Requirements . . .

WHEELS For:
LAWN MOWERS
WHEEL BARROWS
BOAT TRAILERS
HAND TRUCKS
FARM IMPLEMENTS
CARTS — TOYS

Serving Original Equipment Manufacturers

INDUS CORPORATION
1817 MADISON AVENUE
MEIrose 6-6571
INDIANAPOLIS 25, INDIANA

If you write maker identify as IEN - 9619



The 6 most needed pullers

A Complete Package Unit . . .

These popular pullers comes on a permanent steel tool rack. The sizes and type of STEELGRIP Gear, Wheel and Bearing Pullers most frequently needed in tool room, maintenance shop and garage are now packaged on this practical heavy gauge fitted steel board. With these drop forged quality tools, you can pull wheels, gears, pulley pinions and bearings off from shafts easily and quickly without battering or breakage.

Pullers are cadmium plated board finished in deep blue "hammered finish" with gold trim.

Write for catalog of standard and Special Wheel Pullers.

ARMSTRONG-BRAY & CO.
5380 Northwest Highway • Chicago 30, Illinois

If you write maker identify as IEN - 9620

If *yours* is to be a *Superior* machine

It deserves *the best* variable speed drive

GET *Graham*

variable speed drive

- **ULTIMATE in SIMPLICITY and COMPACTNESS**—only the Graham is a straight line extension of a standard induction motor—or available without motor.
- **UNLIMITED SPEED RANGE**—from any desired maximum speed to zero, including reverse if wanted without stopping motor.
- **UNMATCHED ACCURACY**—of speed setting and resetting and speed holding.
- **NO PERISHABLE PARTS**—such as belts or tubes, requiring periodic replacement.
- **PROVED PERFORMANCE**—Fifteen years satisfactory use as standard equipment.
- **LOW COST**—a better job for less money.

Prompt Delivery on Standard Models

GRAHAM TRANSMISSIONS, INC.
Dept. IEN, Menomonee Falls, Wis.

GET *Graham* *most reliable variable speed drive made*

Because engineered and rated for continuous round the clock service

USEFUL INFORMATION — *Continued*

If you write maker identify as IEN - 9622

Construction—Reminder chart on points to check before pouring concrete

Ten points to check are listed in question form on new "Atlas Concrete Checker", a letter-size card punched for hanging. First question, "Is concrete ordered for delivery at right time?" is followed by others on forms, layout, openings, inserts, grade nails, chamfer strips. Last question is, "Are footings free from dirt, ice or snow?" Irvington Form & Tank Corp., 20 Vesey St., Dept. IEN, New York 7, N. Y.

If you write maker identify as IEN - 9623

Gaskets—How flange surface finish affects gasket performance is described in bulletin

Latest in a series of technical bulletins under the collective title, "The Gasket", is a 12-page publication on how flange surface finishes affect gasket sealability and joint performance. It describes a test procedure for flat and grooved flanges, discusses results and gives a set of recommendations. Johns-Manville, 22 E. 40th St., Dept. IEN, New York 16, N. Y.

If you write maker identify as IEN - 9624

Temperature Indicators—Article reprint on methods of making temperature measurements

Heat and temperature as separate concepts, development of the standard temperature scales, nine temperature effects that can be used as a basis of measurement, are covered in 8-page reprint booklet, "How Temperatures Are Measured". One section is on temperature measurement by chemical signal, the basis for the company's crayons, liquids, pellets. Tempil Corp., 132 W. 22nd St., Dept. IEN, New York 11, N. Y.

If you write maker identify as IEN - 9625

Lighting—Fluorescent lighting bulletin tells how it works, how to select and use lamps

"Fluorescent Guide" is new 24-page assembly of information in non-technical form to answer a variety of questions on fluorescent lighting. A diagram shows how fluorescent lamp works. A summary presents standard-start, instant-start, Circline, cold-cathode, germicidal, black-light lamps. A chart suggests uses for seven shades of white lamps. There is a section on how to order. Sylvania Electric Products Inc., 1740 Broadway, Dept. IEN, New York 19, N Y.

If you write maker identify as IEN - 9626

Lubricating—Molybdenum disulfide properties and uses are detailed in technical bulletin

Technical paper presented by Alfred Sonntag, company's president, is offered in 4-page bulletin form with the title, "Lubrication Properties and Industrial Application of Pure Molybdenum Disulfide". Topics include why the material is suited as a lubricant, how it is used, where it can be of particular value such as under extreme pressure or temperature. Alpha Corp., 179 Hamilton Ave., Dept. IEN, Greenwich, Conn.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9627

The BIG Tool and Job Capacity

18" CLAUSING DRILL PRESS with *power feed*

★ Drills 1" cast iron, ½" steel ★ No. 3 Morse Taper, 6½" spindle travel ★ HEAVY-DUTY GEAR-DRIVEN POWER FEED TO TAKE FULL ADVANTAGE OF THIS BIG TOOL AND JOB CAPACITY.

An 18" heavy-duty drill press, with larger tool and job capacity, PLUS a heavy-duty GEAR-DRIVEN power feed to make effective use of its capacity. The power feed, with its large heavy-duty gears, is positive and sure — NO belt slippage to reduce power. Feed selection is instant — BY DIAL — no belts to change. Add the Clausing features of new spindle bearing engineering, vernier depth stop, and exclusive head and table positioning mechanism — and you know this is a tool that can save you plenty on both set-up and operating time. Get all the facts before you buy any drill. See your ATLAS CLAUSING Dealer!

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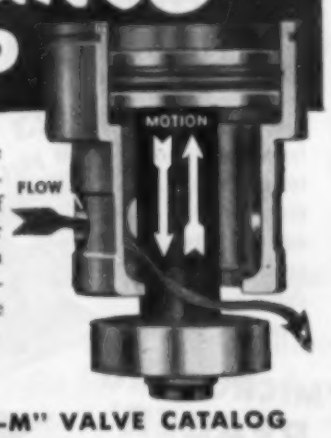
NO SPRINGS NEEDED



This removable cartridge contains the "piston poppet,"...only moving part of a Hannifin "P-M" Master Valve. This piston-driven poppet is pressure operated both ways. There are ***no springs to fail!***

WRITE FOR OUR COMPLETE NEW "P-M" VALVE CATALOG

Find out how P-M Master Valves (pressure-operated) and Pilot-Master Valves (solenoid-controlled, pressure-operated) can all be serviced with a stock of just two sizes of these removable cartridges. 2-Way, 3-Way, 4-Way. Sizes: ⅜" to 1¼". Also, two complete series of ¼" direct-operated valves. Bulletin 232.

HANNIFIN

Hannifin Corporation, 507 Wolf Road, Des Plaines, Illinois
AIR AND HYDRAULIC CYLINDERS • PRESSES • AIR CONTROL VALVES

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saves engineering, fabricating, and installation costs using PLATECOILS

Peters-Dalton, Inc., Detroit, Michigan, has found it is less costly to buy Platecoils than to fabricate their own pipe coils. Platecoils are installed in a fraction of the time without the complicated racks needed for pipe coils. They have also simplified engineering and estimating. Considerable time is saved by the standard charts of sizes and capacities.

Send for complete technical manual and descriptive Bulletin No. P56

PLATECOIL Division, **Tranter Mfg. inc.** LANSING 4, MICHIGAN

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Get Perfect, "Pinpoint" Soldering on Your Smallest Jobs!

Double Metallic Tips only .05" in Diameter!

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Especially designed to work easily in the smallest spaces, without burning or damaging adjacent parts. Nothing to hold but an electrode pencil. Instant resistance heating actually makes some solder joints in less than 1 second! Never allows cold flow joints. Completely safe — easy to use!

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It waxes as it cleans!

REDUCES THE FREQUENCY OF REFINISHING

Sanax was developed to permit frequent cleaning of waxed floors *without washing away the finish* . . . and to eliminate waste in wax and labor. A neutral liquid soap with a wax base, *Sanax* not only quickly removes dirt, oil, and grease, but *leaves a thin film of wax*—a lustrous anti-skid protective finish. *Safe for all floors.* Highly concentrated . . . economical to use. For consultation, literature, or demonstration, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2609 East St., Elkhart, Ind.

For machine-scrubbing or damp-mopping waxed floors

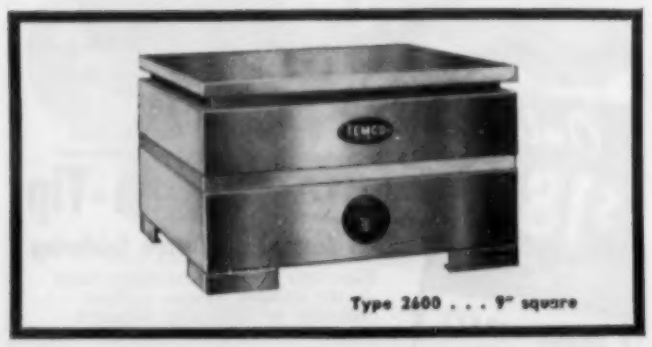
FINNELL SYSTEM, INC.
Originators of Power Scrubbing and Polishing Machines
FINNELL
BRANCHES IN ALL PRINCIPAL CITIES

If you write maker identify as IEN - 9633

TEMCO

HOT PLATE

for heavy duty service in the factory or laboratory



Here's another new model in the wide line of highly dependable TEMCO hot plates. It is designed especially to stand *hard use* for prolonged periods. Built with extra strength to support heavy loads . . . smooth cast iron top plate ideal for all types of work. Nickel-chromium alloy heating element embedded in a refractory plate of high thermal conductivity. Well ventilated for efficient, trouble-free operation. 4-heat control: L-400°; LM-535°; M-710°; H-930° F. (without load). Two models for 115V and 230V a-c operation. 9" square, 6" high. $33.50. Write for data and name of nearest dealer.

THERMO ELECTRIC MANUFACTURING CO.
482 HUFF STREET, DUBUQUE, IOWA

USEFUL INFORMATION —*Continued*

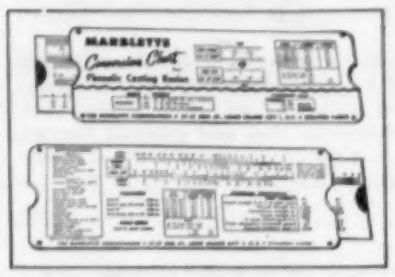
If you write maker identify as IEN - 9634

Lubricating—Technical bulletin, 52 pages, on how to select correct lubricants for a diesel engine

Recently revised Bulletin B-1, "Lubrication of Diesel Engines", starts with a review on fundamentals of diesel design, fuel-injection methods, supercharging, fuels. It describes representative modern engines, requirements for lubricants, filters and oil-reclaiming equipment. There is a section on diesel-engine maintenance along with a trouble-shooting chart. Sun Oil Co., 1608 Walnut St., Dept. IEN, Philadelphia 3, Pa.

If you write maker identify as IEN - 9635

Plastics—Cardboard slide calculator to assist computations of phenolic casting resins



Face of new 8½ by 3-in. Marblette Conversion Chart has slide windows to read pounds of resin against cubic inches and cubic feet, proportions of resin to hardener for 1 to 10-lb. amounts, and conversion figures for pounds, grams, ounces. The back has a window and set of scales to convert dimensions in inches to cubic feet, and then to weight. A second window reads physical properties for three resins. Tables list applications and other data. Marblette Corp., 37-21 30th St., Dept. IEN, Long Island City 1, N. Y.

If you write maker identify as IEN - 9636

Polishing—Wall chart, 17 by 22 inches, tabulates speeds, types, sizes of buffs for polishing

Buff Selector Chart carries two tables and a set of reference information. The first table gives surface speed, spindle speed and buff diameter. The second lists type of buff recommended for cutting and coloring operations on a number of metals and surfaces. American Buff Co., 2414 S. La Salle St., Dept. IEN, Chicago 16, Ill.

If you write maker identify as IEN - 9637

Transformers—Color picture folder shows major manufacturing steps in new Rome plant

Six major steps, from coil winding to shipping, are traced by diagrams and color photographs in 6-page Bulletin GED-2108. The bulletin describes flow of materials in the new $25 million plant to mass-produce RM-ASA medium transformers for utilities. General Electric Co., Dept. IEN, Rome, Ga.

If you write maker identify as IEN - 9638

Tubes—Stress rupture data on eleven tubing steels for high temperature service

Data Card 153-A tabulates analysis, heat treatment, test data on stress rupture at temperature to 1,800 deg. F. for carbon, intermediate chrome-molybdenum and stainless steels. The card is letter size, perforated. Babcock & Wilcox Co., 4029 Fourth Ave., Dept. IEN, Beaver Falls, Pa.

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production flows smoothly...

at top speed, at all times, yet free of rejects

Kester makes 62 different fluxes to meet any requirements. Why not write our Technical Department for full information?

KESTER SOLDERING FLUX

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SHADOGRAPH Scales Weigh Fast, Read Fast!

Precision scales that are available in capacities and sensitivities for every manual packaging, check-weighing, or compounding operation. SHADOGRAPH's shadow-edge indication is projected by a beam of light, eliminating all friction of indicating mechanism and increasing visible accuracy over 300%. Greater speed is achieved through reduction of lever movement and by the action of an adjustable damping device. Parallax readings are impossible. Write for details.

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Better quality control
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MERRILL
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If you write maker identify as IEN - 9643

The Quick, Easy, Handy Way to TAP BY HAND

. . . Adapts for LATHE USE

THE DAHLSTROM TAP GUIDE virtually eliminates tap breakage—and saves those costly hours spent prying broken taps out of dies. Anyone can use it. Just a few turns of the spindle and the job is done.

Winds through continuously, with no backoff. Work is always dependably straight and square. Fasten it to a post or set it on top of a big job. This handy tapper comes equipped with 9 adapters, 8-32 to ¾" but taps are not furnished. Spindle can be pulled out and used in a lathe, or used as tap extension for hard-to-get-at-places. 12" x 8" x 14", wt. 32 lbs. $59.50 F. O. B. factory.

Send for Bulletin!

Also Makers of Dahlstrom Autostrop and Tap Chuck

BRANCH MFG. CO.
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Dahlstrom **TAP GUIDE** — **59.50** F. O. B. FACTORY

If you write maker identify as IEN - 9644

CALCULAGRAPH

keep tabs on costs

– with ACCURATE job time records

CALCULAGRAPH

figures elapsed time accurately

Reliable job time records are essential for compiling correct cost data, estimating reorders and checking on production efficiency. One sure way to secure accurate to the minute, dependable time costs is to use Calculagraph automatically-figured elapsed time records. Calculagraph gives you total elapsed time, starting and finishing time and date on a permanent, printed reference card. Eliminate losses due to inaccurate job time calculations by using Calculagraph to time your operations.

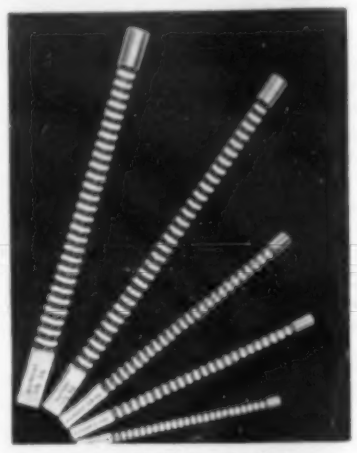
Write for full information today, to Dept. 300

CALCULAGRAPH COMPANY
SUSSEX STREET, HARRISON, NEW JERSEY

If you write maker identify as IEN - 9646

Broaching - Push type cutters to square a round hole in one pass

Source: duMONT CORPORATION
duMont St., Dept. IEN, Greenfield, Mass.



Carried in stock

Illustrated are five of eight standard push type broaches, square in section and measuring from $\frac{3}{16}$ to ¾ inch. The new units have been added to the Minute Man line of high speed steel cutters to "square" a hole that has been drilled, reamed or cast in a metal part. Application can be made with a hand operated or hydraulic press. Special sizes and hexagon shape can be specified.

If you write maker identify as IEN - 9647

Adhesive - Flexible dry film in sheets measuring 8 by 18 inches

Source: BOND ADHESIVE CO.
537 Johnson Ave., Dept. IEN, Brooklyn 37, N. Y.

Clean to use

grips at once

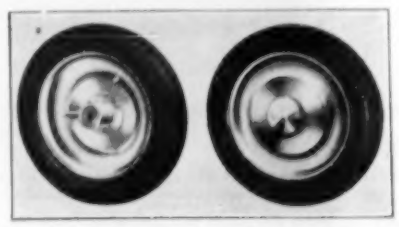
Tweezle trade names a new flexible adhesive film based on the Goodyear material Pliobond. It is supplied with a wetting agent and can be cut to required sizes and shapes for application between a surface and an object to be secured to the surface. It adheres when wet. It is finally cured by application of heat and pressure. List price is $6 per dozen sheets.

Typical applications include lamination of plywood to stainless steel and to aluminum, use on panels and doors, and as a means to adhere medallions, name plates, wall ornaments in place. The film also will join metal, glass, wood.

If you write maker identify as IEN - 9648

Wheels - Die cast aluminum, five sizes with semi-pneumatic tires

Source: NATIONAL DIE CASTING CO.
3635 W. Touhy Ave., Dept. IEN, Chicago 45, Ill.



Polished aluminum

Outside diameter ranges from 4 to 12 in. for this new rubber tired die cast aluminum wheel. The tires are 75-lb. load capacity. The wheels are available with axle diameters at $\frac{7}{16}$, ½ and $\frac{9}{16}$ inches. Length of the hub bearing is 1½ inches. Ball, nylon, Oilite or steel bearings can be specified.

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If you write maker identify as IEN - 9649

Here's BIG HELP IN TERMINAL WIRING!

The New

JONES FANNING STRIP

The correct wire to correct terminal every time!

Connections are made through Fanning Strip, on bench or anywhere apart from barrier strip, and quickly slipped into assembly.

Designed for use with Jones Barrier Terminal Strips Nos. 141 and 142, for 1 to 20 terminals.

9-141 Barrier Strip

Simplifies and facilitates soldering. Insures positive correct connections. Saves time. Ideal for harness or cable assembly. Strong construction: Brass terminals, cadmium plated. Heavy bakelite mounting.

9-161 Fanning Strip. Pat. applied for

Send for complete data on this new basic improvement.

Jones — HOWARD B. JONES DIVISION
CINCH MANUFACTURING CORPORATION
CHICAGO 24, ILLINOIS
SUBSIDIARY OF UNITED-CARR FASTENER CORP.

If you write maker identify as IEN - 9650

MERCURY A-310 TRAILER

Corrugated box body

Steel dump body

Standardized for economy *Flexible* for every need

Basic design, materials, fabrication of the A-310 Trailer have been standardized through years of rigorous testing under severe industrial service. Sizes, deck specifications, body types and superstructure are flexible to the requirements of each individual user. Wheel type and coupling system are optional. The result is the Mercury A-310 Trailer . . . standard of industry for efficient, low-cost, load carrying service. For complete details write for Bulletins 160 and A999.

MERCURY
FORK TRUCKS · TRACTORS · TRAILERS

MERCURY MANUFACTURING COMPANY
4132 South Halsted Street, Chicago 9, Ill.

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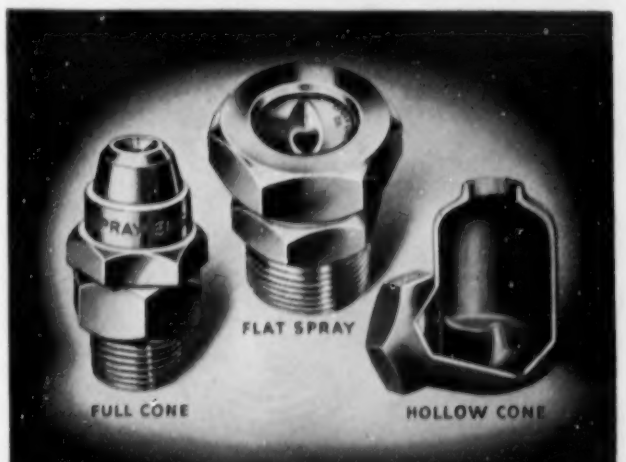

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Write for NOZZLE CATALOG *to*
SPRAY ENGINEERING CO.
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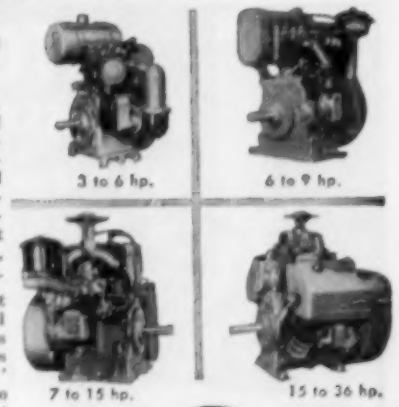
If you write maker identify as IEN - 9652

Most Specified for ORIGINAL EQUIPMENT POWER

WISCONSIN ENGINES

HEAVY-DUTY *Air-Cooled*

3 TO 36 HP.



3 to 6 hp. 6 to 9 hp. 7 to 15 hp. 15 to 36 hp.

In the design, manufacture, and ultimate use-purchase of mechanized field and industrial equipment . . . Wisconsin Heavy-Duty Air-Cooled Engines are specified as Original Equipment Power Components to a greater extent than any other make of engine, within a 3 to 36 hp. range.

This dominant preference must necessarily be based on actual *performance records* of users . . . because Wisconsin Engines are not sold on a "price" basis. These engines have the inherent Lugging Power that *stays with the job*, eliminating "stop-and go" delays, saving manpower and manhours . . . and delivering "Most H. P. Hours" of on-the-job service, with minimum servicing.

If this makes sense to you, let's get together. Write for engineering and descriptive data.

Power TO FIT THE JOB — Power TO FIT THE MACHINE

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

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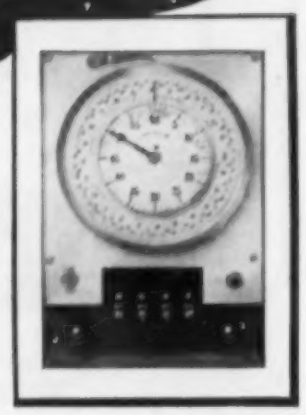
Always UP to the job

ZENITH



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Check these features: no overheating on 24 hour operation—solid contact pressure—instant opening switch. Operates up to 60 times per minute at 80% of rating, 30-300 amp. AC, 1, 2, 3 poles. 30-200 amp. DC, 1, 2 poles.

Zenith makes a complete line of Timers, Switches, Starters . . . special automatic controls made to order. Write today for free catalog and money-saving quantity prices.

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in your HANDY pocket-size Abart CATALOG specifications, diagrams and performance data on Abart Gearmotors—right angle type: 1/6 to 5 hp. . . . ratios 5-4/5 to 1 up to 100 to 1 . . . output speeds from 17.5 to 302.0 rpm.

Your copy is free upon request—write today!

There's an efficient, compact Abart Gearmotor to fit your particular needs.

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Also Mfrs. of Gears and Speed Reducers

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MODERN TIME AND COST SAVERS BUILT BY... Standard GRAVITY & POWER CONVEYORS

LIGHT AND EASY TO CARRY

Put it where you need it!

LITEWATE Roller Conveyor

Ideal for loading and unloading. Handles commodities up to 60 lbs. — moves bags, cases, hollow bottom, narrow, cleated and irregular packages. Available in 10 ft. and 5 ft. straight sections and 90° and 45° curves. Keep LITEWATE conveyors handy in your storage and shipping rooms — carry them in your trucks. Write for LITEWATE Conveyor Bulletin — address Dept. IEN-94.

STANDARD CONVEYOR COMPANY
General Offices: North St. Paul 9, Minn.
Sales and Service In Principal Cities

USEFUL INFORMATION—Concluded

If you write maker identify as IEN - 9656

Soldering—Reference book, 80 pages, deals with solders, fluxes and methods of application

"Solder—Its Fundamentals and Usage" titles new book intended to bring you up to date on materials and uses. It starts with the nature of solder, effect of other metals, types of fluxes, flux-core wire solders, solid materials. Application by dip pot, iron, induction heating, resistance, hot-plate and flame is described. There is a section on materials and procedure for soldering printed circuits. Kester Solder Co., 4201 Wrightwood Ave., Dept. IEN, Chicago 39, Ill.

If you write maker identify as IEN - 9657

Trucks—Preventive maintenance for industrial trucks is subject of reprint article

John A. Draxler, manager of the company's service engineering, is author of a technical article available as 8-page reprint bulletin "Preventive Maintenance for Industrial Trucks". In it are stressed the importance of accurate records to anticipate trouble, the use of correct lubricants, principal causes of breakdown. Feature is a check list for weekly, monthly, four-month inspection. Elwell-Parker Electric Co., 4205 St. Clair Ave., Dept. IEN, Cleveland 3, Ohio.

If you write maker identify as IEN - 9658

Trucks—Two page printed form to check lift truck preventive maintenance points

Six points on a daily check list, six points on a 7-day check list and six points on a 28-day check list are provided on new 17 by 11-in. Preventive Maintenance Chart that folds to letter size. The printed form provides space for inspector's initials over a period of eight weeks of electric lift truck operation. Lewis-Shepard Products Inc., 125 Walnut St., Dept. IEN, Watertown 72, Mass.

If you write maker identify as IEN - 9659

Welding—Booklet of design suggestions on making welded joints and on hard facing of parts

Sixteen-page booklet condenses information on design of welded joints, suggestions on the welding alloy to use, sketches to show high spots in the application methods, tells about weld metal deposition for machinable overlay and for hard facing. Other sketches show examples of parts fabricated by welding. Ask for "Manual of Design and Welding Engineering". Eutectic Welding Alloys Corp., 40-40 172nd St., Dept. IEN, Flushing 58, N. Y.

If you write maker identify as IEN - 9660

Zirconium—Information booklet describes properties and fabrication of the metal

"Facts about Zirconium" is new 64-page pocket-size booklet on the metal which the company offers for commercial applications. The booklet describes production, properties, alloys, melting, rolling, welding, fabrication methods, zirconium compounds, atomic and nuclear properties. Carborundum Co., 1942 Buffalo Ave., Dept. IEN, Niagara Falls, N. Y.

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If you write maker identify as IEN - 9661

DARNELL CASTERS & E-Z ROLL WHEELS

ECONOMY and EFFICIENCY

STRING GUARDS... Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

RUST-PROOFED... by the Udylite process, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

RUBBER TREADS... a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

LUBRICATION... all swivel and wheel bearings are factory packed with a high quality grease. Zerk fittings are provided for easy lubrication.

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go to a SPECIALIST for helical finned heat transfer tubing

- straight lengths
- compact coils for refrigeration condensers
- blast air heating coils
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OVER 100 SIZES IN PRODUCTION

Made to your individual specifications!

ROME TURNEY RADIATOR COMPANY

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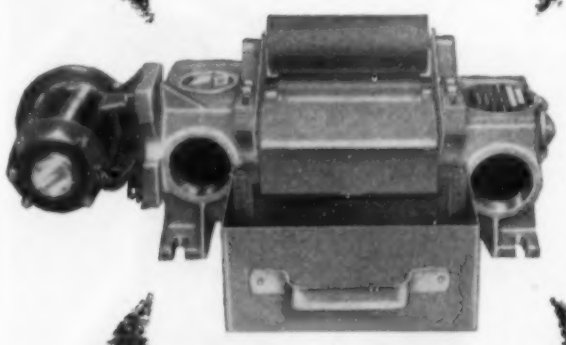
new! Houdaille MAGNETIC SEPARATOR



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used in

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DRILLING MACHINES • HONING MACHINES
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NOW . . . a completely new Magnetic Separator designed to remove ferrous metallic particles and sludge from liquid coolants, mineral oils and soluble oil solutions used in all types of metal finishing operations. Automatic, continuous cleaning of coolants with the Houdaille Magnetic Separator provides:

- Increased Production
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- Better Finishes with Fewer Rejects
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IMPORTANT FEATURES:

EASY INSTALLATION ON MACHINE TOOL SUMP
Flexible design permits choice of three inlets and two outlets. Small, compact unit requires little or no extra floor space.

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Permanent ring magnets enclosed in revolving cylinder provide 360° of magnetic attraction. Evenly distributed . . . no spottiness.

ECONOMICAL, TROUBLE-FREE OPERATION
Separator uses 1/70 hp. gear head motor (TENV). Features smooth, automatic operation. Nothing to lubricate, nothing to get out of order.

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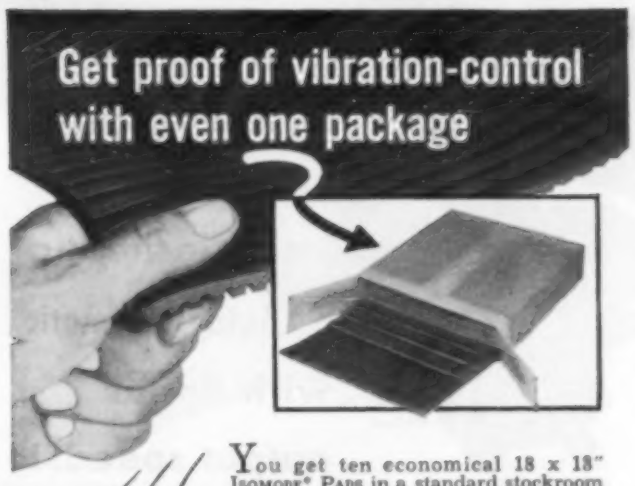
802 Wabash Ave., Lebanon, Ind.
a subsidiary of
HOUDAILLE-HERSHEY CORP.

If you write maker identify as IEN - 9665



You get ten economical 18 x 18" ISOMODE* PADS in a standard stockroom package. At the recommended Pad loading of 50 lbs per sq. in., this gives you enough mountings for up to 80 TONS OF MACHINERY. Simply cut to required size, place the pads under legs or base—and you begin to see proof of vibration-control with benefits like these:

Machines stay put without bolts or lag screws . . . Noise diminishes . . . Even punch press shocks are absorbed . . . Machines stay tighter longer . . . Less cracks in floor and building.

Write for prices and detailed Bulletin No. 415.

*Trade Mark

ISOMODE* PADS are produced by

THE MB MANUFACTURING COMPANY, INC.
1064 State Street, New Haven 11, Conn.

If you write maker identify as IEN - 9666

KOHLER ENGINES

K90 ..... 3.6 H.P.
K160 .... 6.6 H.P.
K330 ....11.8 H.P.
K660 ....26.8 H.P.

Kohler Engines are engineered and manufactured to the high standards which have made the Kohler mark known for quality the world over. Power for garden tractors, pumps, sprayers, snow removal equipment, grain elevators, hoists, portable saws, concrete mixers, compressors, industrial lift trucks.

Write for information

Kohler Co.,
Kohler, Wisconsin
Established
1873

KOHLER OF KOHLER
PLUMBING FIXTURES • HEATING EQUIPMENT
ELECTRIC PLANTS • AIR-COOLED ENGINES
PRECISION CONTROLS

If you write maker identify as IEN - 9668

Printing - Belt feed machine prints and dry develops, width to 42 in.

Source: OZALID DIVISION
20 Ansco Road, Dept. IEN, Johnson City, N. Y.

Prints are stacked

Translucent engineering drawings and business forms can be printed and dry developed in this new Model-800 machine. The finished work is delivered at either the front or the rear in continuous operation. Prints go directly from the feed board through exposure and development. A new atomizer forces ammonia under pressure into a vaporizing tank for developing.

Electronic control can be adjusted to set any speed from 8 ipm. to 30 fpm. A power input stabilizer maintains constant printing speed by compensating for voltage fluctuations in a range from 200 to 240 volts. A thermostat maintains correct temperature in the developing section. Vapor circulation is tied in with the machine's different speeds. A rear stacking device and a constant torque motor can be specified. List price of the new machine is $3,250.

If you write maker identify as IEN - 9669

Protecting - Cow hide work glove tanned for softness and pliability

Source: ILLINOIS GLOVE CO.
Dept. IEN, Champaign, Ill.

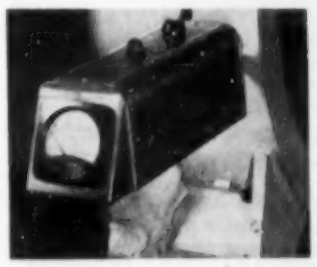
Tanning process is company's secret

Comfortan trade names a new line of leather palm and all leather work gloves to provide comfort as well as protection for the user, with resistance against wear and heat. The glove is reinforced with welts of grain horsehide sewn with tough 4-cord thread. Cuffs are rubberized.

If you write maker identify as IEN - 9670

Testing - Vibration meter measures displacement and acceleration

Source: GENERAL ELECTRIC CO.
Dept. 6X-201, Schenectady 5, N. Y.



Hold close and read

Type VHA is a new hand held portable meter consisting principally of a barium titanate accelerometer, an electronic amplifier, a copper oxide rectifier and an indicating microammeter. The instrument operates on hearing aid batteries and weighs about 5 pounds. Its overall dimensions are 4 by 13¾ by 8 inches. Control centers at a trigger type switch in the handle.

Frequency range is 10 to 250 cycles per second. Six acceleration ranges are maximum at 0.03 to 10g. Peak displacement range is in five steps, maximum at 3 to 300 mils full scale.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9671

engineers and PA's

This useful fact-filled catalog

YOURS FOR THE ASKING

Everything you need to know about

CURTIS UNIVERSAL JOINTS
in one convenient, file-size package.

Partial list of contents
- Sizes & styles
- Special joints
- How to specify
- Test data
- Torque & load ratings
- Keyway & Broach data
- Dimension drawings
- Engineering data
- Prices

Write today on your letterhead for your FREE copy.

Trade Mark **CURTIS**
UNIVERSAL JOINT CO., INC.
7 BIRNIE AVE., SPRINGFIELD, MASS.
As near to you as your telephone
SINCE 1919 — EXCLUSIVELY A MANUFACTURER OF UNIVERSAL JOINTS

If you write maker identify as IEN - 9672

for accurate Voltage Control of small ac machines

- No vibrating or sliding contacts to require attention.
- Special dust-proof design assures maximum protection.
- *Rocking Contact* sector gives quick regulation with small movement.
- Four simple connections and it's ready to operate.

Only a small rocking movement of the contact sector over the curved commutator is required to cover the entire regulating range. Response is fast, accurate . . . sliding friction is eliminated, wear minimized.

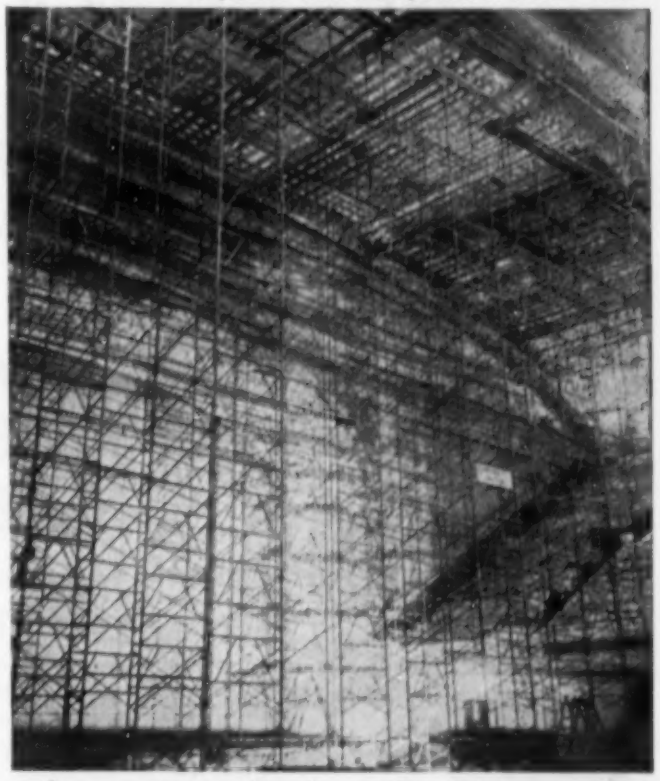
V-00 regulator is used on ac generators with direct-connected exciters to 157 kva at 3600 rpm. Type 221 is used on ac machines with direct-connected exciters to 438 kva at 3600 rpm. These regulators can be modified for temperature compensation, shock mounting, or other special requirements.

Ask your A-C representative, or write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 14B6143A.

A-4361 *Rocking Contact is an Allis-Chalmers trademark.*

ALLIS-CHALMERS

If you write maker identify as IEN - 9673



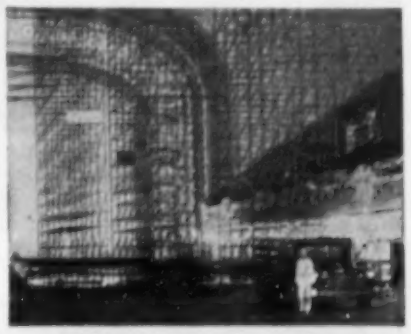
First Bath in 31 Years!

SAFWAY ROLLING TOWER SPEEDS $93,000 CLEANING JOB ON CLEVELAND PUBLIC HALL

PROBABLY THE LARGEST *rolling* scaffold ever assembled (it weighed over 39 tons) was used by the Garbo Decorating Co. in washing the interior of Cleveland's giant Public Hall.

A full 42 ft. deep, this Safway Scaffold spanned the entire width of the auditorium—207 ft. at its widest point—and reached to the 72½ ft. high ceiling. When work was completed on one 42-ft. strip, the *complete scaffold* was advanced another 42 ft. with the aid of two trucks and 10 men. Each moving operation took just 45 minutes.

SAFWAY FITS EVERY JOB



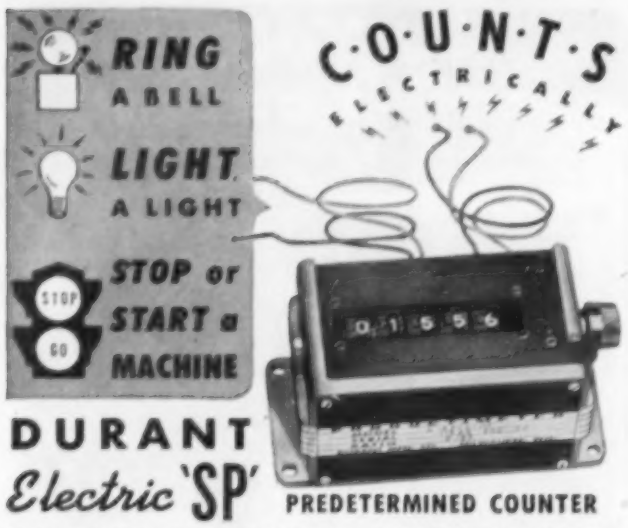
Standard Safway parts can quickly be made up into scaffolds to fit any job—large or small—high or low—regular or irregular. Put your men in the best working position fast and safely.

Learn how elevated maintenance can be completed better—faster—cheaper with Safway built-up towers. Write for this new bulletin.

RENTED and SOLD by distributors everywhere

SAFWAY STEEL PRODUCTS INCORPORATED
6228 West State St.
MILWAUKEE 13, WIS.
Manufacturers of Tubular Steel Scaffolding and Equipment

If you write maker identify as IEN - 9675



DURANT
Electric **'SP'** PREDETERMINED COUNTER

(COUNTS ELECTRICALLY and CLOSES SWITCH AT END OF PRE-SET COUNT)

Eliminates costly over-runs or time consuming under-runs. Actuated by Photo Electric Cell, Tube, Relay, or Contact Switch. Counter can be located where desired. Predetermined count may be set at any figure to 99,999. Hundreds of applications in all phases of production and instrument work.

SMALL • COMPACT • RUGGED • FAST • ACCURATE

Send for Catalog No. 502

DURANT MANUFACTURING CO.
1930 N. Buffum St. Milwaukee 1, Wis.
130 S. Water St. Providence 3, R. I.
Representatives in Principal Cities

PRODUCTIMETERS 75th ANNIVERSARY
Count Everything

If you write maker identify as IEN - 9676

SAVE 85% Of Needless Washroom Expense

NEW, FASTER DRYING *Sani-Dri*
Provides CLEAN, SANITARY SERVICE

SAVES TOWEL COSTS . . . SAVES MAINTENANCE

Save up to 85% of washroom costs with new, faster drying Sani-Dri hand and hair dryers. No buying and storing of paper towels . . . no monthly service fee for cloth towels. Sani-Dri reduces maintenance overhead and provides 24-hour, automatic drying with no clutter . . . no towel waste . . . no fire hazard. All models carry Underwriters seal and 2 year guarantee.

Only Sani-Dri—The Original Electric Dryer Offers So Many Exclusive Features!

•

WRITE TODAY FOR NEW ILLUSTRATED FOLDER SHOWING COMPLETE LINE

Manufactured and Guaranteed By
THE CHICAGO HARDWARE FOUNDRY CO.
"Dependable Since 1897"
3494 Commonwealth Ave. No. Chicago, Ill.

If you write maker identify as IEN - 9677

NOLAN ONE-MAN CAR DOOR OPENER

Opens Doors in 20 seconds or less!

The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry! New chain has 2000 lbs. tensile strength.

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety features make the Nolan 1-Man Car Door Opener a more necessary labor-saving, money-saving help than ever before.

MANY THOUSANDS IN CONSTANT DAILY USE! FREE LITERATURE.

Order one or more NOLAN Model-H Car Door Openers now. Catalog on request.

$37.50 F.O.B. Bowerston

THE NOLAN COMPANY • 114-C Pennsylvania St., Bowerston, Ohio

If you write maker identify as IEN - 9678

Painting - Spray booth coating accumulates "over spray" for removal

Source: DETREX CORPORATION
14329 Woodrow Wilson, Dept. IEN, Detroit 32, Mich.

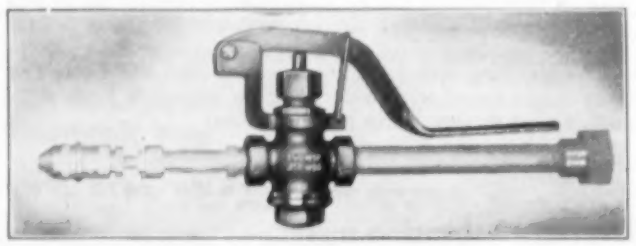
Spray it on and peel it off

White Vincote is a new vinyl plastic liquid material designed to spray on the wall surfaces of paint spray booths. It dries almost at once to a tough white film on which over-sprayed paint, lacquer and enamel adheres. It can be peeled from the booth surface at intervals and renewed with a new spray coating to keep the booth clean. The white color distributes light within the booth to assist the operator. Coverage is about 250 to 400 sq. ft. per gal. depending upon the thickness desired. Packaging is in non-returnable metal drums, kegs and 5 gal. containers.

If you write maker identify as IEN - 9679

Valve - Lever operated design, five sizes, to construct a spray head

Source: OHIO BRASS CO.
100 Surrey Road, Dept. IEN, Mansfield, Ohio



Details in Data Sheet 1311

Bronze, with a reinforcing steel insert in the stem, is employed in the body construction of this new lever operated valve. It is made in five sizes between ¼ and 1 in. with capacity to handle steam at 150 lb. and water, oil or gas at 300 pounds. The design is quick opening, leak tight. Sizes, measuring ¼ and ⅜ in., can be employed in construction of a compressed air blow gun.

If you write maker identify as IEN - 9680

Nameplates, dial and watch faces, wiring diagrams, instruction plates, instrument and slide rule scales are representative products that can be made from a new photo-sensitive anodized aluminum sheet available from Metalphoto Corporation, 2903 E. 79th St., Dept. IEN, Cleveland 3, Ohio. Three sheet sizes are 4 by 5 in., 8 by 10 in. and 10 by 12 inches. Thickness is 0.02 inch. The finished product is resistant to abrasion and attack by acids, salts and organic solvents. It is resistant to heat to 1,000 deg. F.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9681

By using high-speed RAMSET SYSTEM for anchoring into steel or concrete, aircraft builders Glenn L. Martin Company slash maintenance costs at their Baltimore plant. They fasten steel rails, erect security fences, lay wood floors, install electrical services and make many day-by-day repairs. Not only do they reduce costs, but they finish the work 15 times as fast as by old-fashioned methods, to keep production rolling.

Ask your RAMSET dealer or write us for details on how you can make substantial savings in time and money, in new construction, maintenance or modernization with fast, easy, economical RAMSET SYSTEM.

Ramset Fasteners, INC. RAMSET DIVISION OLIN INDUSTRIES INC.
12143 BEREA ROAD • CLEVELAND 11, OHIO

FIRST IN POWDER-ACTUATED FASTENING — AN Olin PRODUCT

If you write maker identify as IEN - 9682

REEVES Automatic Controls! ...including Auto-Pneumatic with linear output speeds!

• *For automatically controlling liquid levels in tanks, maintaining constant temperatures, pressure, and other variables, and monitoring flow systems of liquids, gases or chemicals.*

REEVES new Auto-Pneumatic control with linear output speeds is but one of a complete line of controls designed and engineered to operate your machines more efficiently, more profitably, *automatically.* Send today for your copy of REEVES new Automatic Production Control Booklet. Specify IN2c-G.

FREE!
Reeves New Automatic Production Control Booklet

REEVES PULLEY COMPANY • COLUMBUS, IND.

If you write maker identify as IEN - 9683

You need U. S. GRIZZLY Uskorona-insulated Power Cables

Here's an illustration showing how ozone can chew up a sturdy, rugged cable. This can never happen with United States Rubber Company's famous Grizzly® Power Cables insulated with Uskorona® compound which prevents electrical failure caused by ozone (Uskorona-1 oil base compound or Uskorona-2 butyl rubber compound). Uskorona meets (and in many ways exceeds) the applicable IPCEA specifications for ozone-resistant rubber insulation.

As the only wire manufacturer that grows its own natural rubber, produces its own synthetics and makes its own plastics (as well as the bulk of its own rubber-compounding chemicals and ingredients), United States Rubber Company is able to make certain that only the finest materials are used in the insulations for its own wires and cables. These materials are expertly compounded according to methods devised after years of research and experimentation in "U.S." laboratories. Finally, U.S. Rubber's practical "know-how" contributes its important part to the uniform high quality of every "U.S." insulation. This "know-how" is the result of 68 years of successful manufacture of electrical wires and cables, and over a century in the making of fine rubber products.

U. S. Grizzly Uskorona-insulated Power Cable, 5,000 Volts, type RR, 3 conductor, shielded, Neoprene jacket.

Send for free catalog giving full information about U. S. Electrical Wires and Cables.

US RUBBER **UNITED STATES RUBBER COMPANY**
ELECTRICAL WIRE & CABLE DEPARTMENT
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

If you write maker identify as IEN - 9685

32 Pages of Helpful Information on Dust Recovery Systems

If you are now using dust or fly ash recovery equipment in your plant—or are planning installation of such equipment now or later—you will find this 32 page Multiclone booklet full of helpful information. Illustrations and diagrams outline basic principles of dust recovery and how to utilize them for maximum efficiency . . . how to simplify your installations . . . how to conserve valuable plant space . . . how to get high recovery over a wide range of particle sizes, etc. *A copy of this booklet should be in your files for reference and assistance in dust recovery applications. A free copy will gladly be sent you on request. Write today while supplies are adequate*

WESTERN Precipitation CORPORATION

DESIGNERS AND MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF HUMIDIFIED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1031 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
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PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

If you write maker identify as IEN - 9686

ECONOMY LIFTERS

Sturdy Structural Steel Frame Engineered for Extra Stability and Strength

SHOPLIFTER

LIFTS-MOVES-SEPARATES HEAVY DIES AND MOLDS

Safely handles heavy dies from storage rack to press—lifts barrels, boxes—helps load trucks—or as a handy adjustable shop table. Automatic brake holds load at any height.

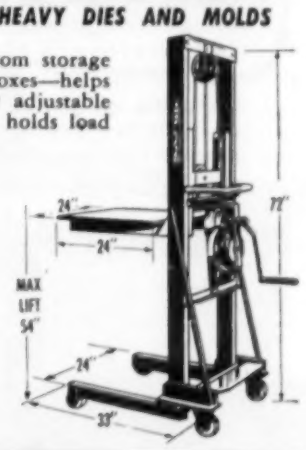
Type D — Hand operated. Cap. 500 lbs. **$183.60**

Type DE — Electric operated. Cap. 500 lbs. **$412.08**

Type DX — Hand operated. Cap. 1000 lbs. **$349.52**

Type DX — Hand operated. Cap. 2000 lbs. **$417.52**

Floor lock included. Prices net, f.o.b. Chicago.

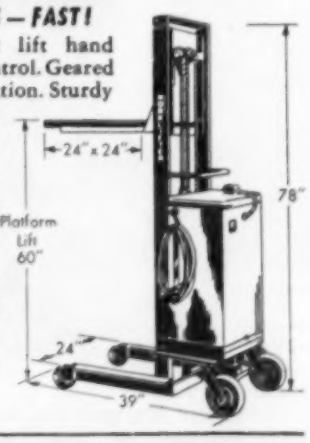


WORKLIFTER

STACKS 1000 LB. LOADS — FAST!

Battery powered, hydraulic lift hand truck. Push button remote control. Geared pump for smooth, quiet operation. Sturdy structural steel frame. 12 volts (two six volt batteries) lifts loads fast. Built-in, 8 amp/hr battery charger. Power shut-off to prevent excessive overload. Roller bearing, solid hard rubber wheels.

60" platform lift, $695.00. 80" platform lift, $795.00. Adjustable fork models for pallets from $810.00. Many other models for special applications.



ELEVATING TABLE

ADJUSTABLE HEIGHT — 2000 LBS. CAPACITY

For feeding sheet stock, supporting fabricated frames, handling heavy dies or as a portable work bench.

Self-locking worm and screw elevating mechanism holds work at any height without danger of falling.

Table dimensions 24" x 36". Height adjustable between 24" minimum and 42" maximum. Foot operated floor lock holds table stationary when not in use.

Net price, $210.80 f.o.b. Chicago.

Representatives and Distributors in All Industrial Areas

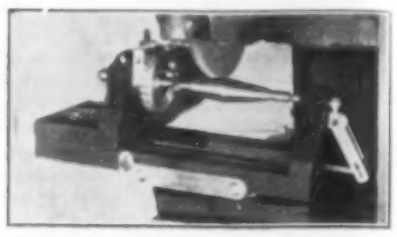
ECONOMY ENGINEERING CO., 4502 W. Lake St. Chicago 24, Ill.

ESTABLISHED 1901

If you write maker identify as IEN - 9688

Grinding - Cylindrical fixture positions work on a surface machine

Source: BINGHAMTON DIE & MACHINE CO.
103 Professional Bldg., Dept. IEN, Binghamton, N. Y.



Patent pending

Straight or tapered work, cylindrical or multi-sided in cross section, can be mounted between centers or can be chucked for grinding on a surface machine in this new Cylindex fixture. Work can be handled to 7¼ in. between centers to 6-in. swing and to 2-in. chucking diameter. A through hole, in the anti-friction bearing spindle, takes long pieces measuring $\frac{3}{16}$ in. in diameter. The spindle can be indexed for multi-sided work or rotated at about 170 rpm. by its 1/30-hp. 110-volt ac. motor.

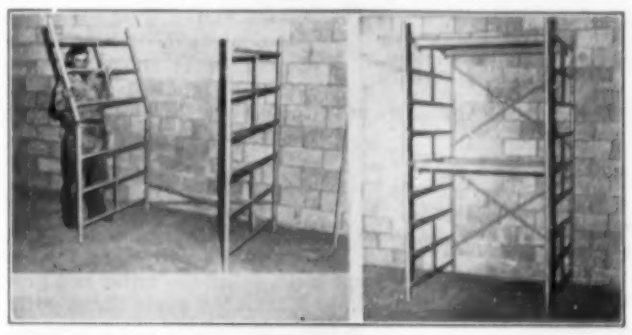
Assembly is on an Almag casting fitted with steel pads to grip on a magnetic chuck. Locating pins apply on the side of the chuck to square the fixture quickly. Angles are set by means of a sine bar in a range between minus 12 and plus 18 deg. Overall dimensions are 18¼ by 8¾ by 7⅝ in., the last named figure being the height to the chuck when the fixture is set in level position.

Equipment includes a four jaw independent chuck with capacity from $\frac{1}{16}$ to 2 in., a spindle dead center, a steady rest and three driving dogs with a range from $\frac{1}{16}$ to 1 inch. The required wrenches are also supplied. Weight is 23 pounds. List price is about $300.

If you write maker identify as IEN - 9689

Storing - Tubular steel frame with braces and load bars for pallets

Source: BRAINARD STEEL DIVISION
Larchmont Ave., Dept. IEN, Warren, Ohio



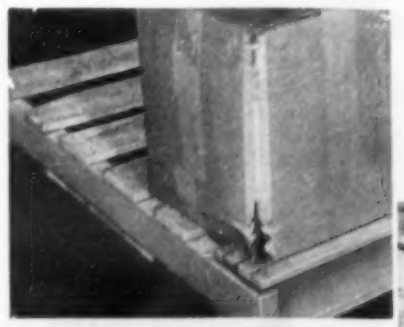
Sets up or moves quickly

Loaded pallets can be stacked 2, 3, or 4 high after assembling a new rack which the company has based upon a tubular steel frame similar to its scaffold frame, previously described IEN-7397-53. The frames nest one upon another. They are connected by sway braces at the rear. Hook equipped load bars are placed to carry the pallets.

Each section is independently adjustable. The frame is available for pallet depths measuring 36 to 60 inches. Width between the racks, established by the braces and the length of the load bars, ranges from 36 to 120 inches. Height between the bars is in multiples of 1 foot.

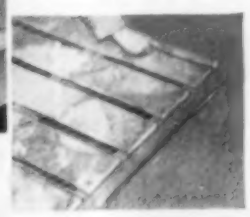
All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9690



Loose nails rip containers.

Split boards weaken pallets.

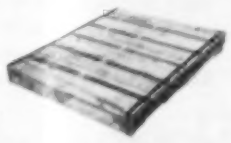


STOP DAMAGE to pallet loads and extend pallet life!

Signode Steel Strapping tensioned and stapled over the end boards on a pallet extends pallet life as much as three times. The strapping holds the end boards tightly to the runners, keeps pallets rigid, prevents nails from working loose, and reduces chances for damage to end boards by fork lift trucks.

Damage to bags and cartons strapped on pallets is virtually eliminated. Savings are so certain that *some large shippers strap all new pallets!* Write for factual data and free demonstration.

Pallet reinforced with Signode steel strapping.



SIGNODE
STEEL STRAPPING COMPANY
2611 N. Western Ave., Chicago 47, Ill.

SIGNODE THIS SEAL MEANS SECURITY IN SHIPPING

If you write maker identify as IEN - 9691

The U.S. Bureau of Mines approved respirator that *filters the air and makes it clean!* 24 square inches of filtration area makes breathing a breeze! For those who must work in dusty places there is nothing quite like Dupor No. 24. Get details! Order sample today, $3.00 postpaid.

H. S. COVER, SOUTH BEND, IND.

"Respirators for Industry since 1894"

If you write maker identify as IEN - 9692

NOPAK Shelf-Stock Service . . .

based on these 2 Standard Mounting, Class 1, Cushioned Cylinders

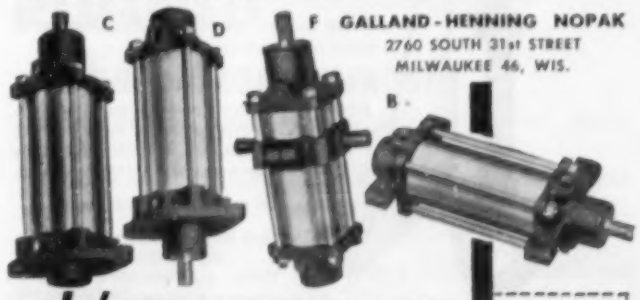
LIST PRICES F.O.B. Milwaukee, Wisconsin — Subject to Revision.

Cyl. Dia. Bore	STOCK STROKE LENGTHS — All Double Acting								
	1"	2"	3"	4"	6"	8"	10"	12"	15"
1½"	24.16	25.72	26.08	26.44	27.16	27.88	28.60	29.32	30.40
2"	26.24	27.88	28.32	28.76	29.64	30.52	31.40	32.28	33.60
2½"	32.36	34.12	34.68	35.24	36.36	37.48	38.60	39.72	41.40
3"	35.04	37.28	37.92	38.56	39.84	41.12	42.40	43.68	45.60
4"	40.84	43.68	44.52	45.36	47.04	48.72	50.40	52.08	54.60
4½"	48.96	51.92	52.88	53.84	55.76	57.68	59.60	61.52	64.40
6"	66.60	70.80	72.20	73.60	76.40	79.20	82.00	84.80	89.00
8"	———	126.80	129.20	131.60	136.40	141.20	146.00	150.80	158.00

By specifying NOPAK Shelf-stock, you buy *quality cylinders* at lowest prevailing prices, you *eliminate waiting* for "specials", reduce engineering costs. Compare the prices and scope of NOPAK Shelf-stock (1½ x 1" to 8 x 15") with competitive offerings — and you *will specify* NOPAK.

● Basic mountings "A" or "E" convertible to "B", "C", "D" or "F", (see below) by changing cylinder heads. Add 10% to above prices (no extra charge 8" bore). ● Piston Rods NF male thread. ● Cushioning can be eliminated on rod, blank or both ends by removing spring and ball-check.

NOPAK 4-Way Valves, hand, foot, solenoid, or pilot operated, to actuate all cylinders, *also in Shelf-stock.*



GALLAND-HENNING NOPAK
2760 SOUTH 31st STREET
MILWAUKEE 46, WIS.

NOPAK
VALVES AND CYLINDERS
DESIGNED for AIR and HYDRAULIC SERVICE

TEAR OUT THIS AD for Reference — or write for extra copies.

If you write maker identify as IEN - 9694

NEW, IMPROVED TYPE screw anchor expanders

quickly set anchors in masonry of any thickness, holes of varying depth

Now, with the new GREENLEE Screw Anchor Expander you can rapidly and *securely* set lead screw anchors *flush* with the surface of masonry . . . *regardless of its thickness . . . regardless of hole depth.* Eliminates all guesswork . . . the expander tool positions the anchor *positively* every time. Fast, easy operation. Simply drill hole, screw the anchor onto expander, insert in hole, then strike expander with hammer. Three sizes for most widely used sizes of anchors. Write for descriptive literature. Greenlee Tool Co., 1869 Herbert Ave., Rockford, Illinois.

GREENLEE

If you write maker identify as IEN - 9695

the BEST TOOL for every cleaning job

an EXCELLENT FIRE PRECAUTION too

HYPRESSURE **Jenny** STEAM CLEANER

New Series "1800" Jenny, ideal for industry's heavy-duty cleaning jobs.

As a general maintenance tool JENNY will save you up to 90% in man-hours and plant cleaning costs by removing oils, grease, muck and grime from machinery, conveyors, floors, walls, skylights, semi-finished products, tools and equipment, *10 times faster—and better* than bucket, brush, and scraper, volatile solvents, or other outmoded cleaning methods. And you'll realize additional savings through the stepped-up production which results when mechanics work with clean tools and equipment.

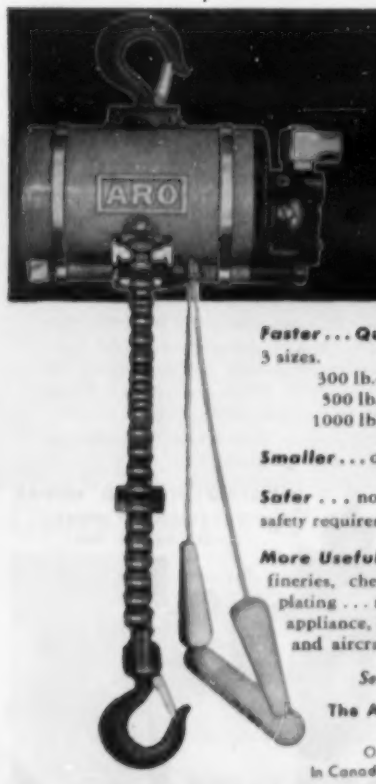
Add to this the fact that by JENNY steam cleaning you are eliminating the oils, grease, and other inflammables that spark fires and spread them, and you can see why a *JENNY in your plant is one of the best methods of fire precaution you can take.*

Send for Catalog today for full facts.

HYPRESSURE JENNY DIVISION
HOMESTEAD VALVE MANUFACTURING CO.
Serving Since 1892
P. O. BOX 85 • CORAOPOLIS, PA.

If you write maker identify as IEN - 9696

ARO Variable Speed AIR HOIST



Faster . . . Quieter . . . wide speed range, 3 sizes.
300 lb.—lift rate 75 ft. per min.
500 lb.—60 ft. per min.
1000 lb.—40 ft. per min.

Smaller . . . one man can easily install.

Safer . . . no spark hazard . . . betters all safety requirements.

More Useful . . . for shipping docks . . . refineries, chemical plants, heat treating, plating . . . machine shops, foundries . . . appliance, furniture, textile, automobile and aircraft assembly . . . stock rooms.

See your ARO Distributor

The Aro Equipment Corporation
Bryan, Ohio
Offices in All Principal Cities
In Canada—Aro Equipment of Canada, Ltd. Toronto, Ont.

ARO AIR HOIST

Also . . . Air Tools . . . Lubricating Equipment . . . Aircraft Products . . . Grease Fittings

If you write maker identify as IEN - 9697

Sawing - Band saw machine, 12 in. throat, 6¼ in. work height

Source: ATLAS PRESS CO.
2491 N. Pitcher St., Dept. IEN, Kalamazoo, Mich.

Catalog on request

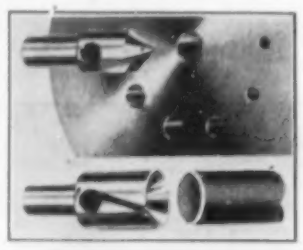
Two speeds at the blade of this new 12-in. metal cutting machine are 100 and 250 rpm. Drive is by a ½-hp. motor supplied or specified by the user. The motor mounts on a floating rail to permit quick speed change at the connecting V-belt and step sheaves. The transmission includes a reducer, two sets of sprocket wheels and roller chains. The sprocket wheel shafts are ground and mounted in factory lubricated permanently sealed ball bearings. The band wheels are balanced. Each rotates on two ball bearings also factory lubricated and sealed.

The machine will cut to the center of a 24-in. circle and will take work measuring 6¼ in. in height above its 14 by 14-in. tilting table. The base and arm are cast iron. Support for the cast iron table is on two trunnions. Overall dimensions are 14 by 22¼ by about 35½ inches. The machine can be mounted on a bench or on a stand that is available for this purpose.

If you write maker identify as IEN - 9698

Burring - High speed cutters remove burr from holes and rod ends

Source: NOBUR MFG. COMPANY
717 N. Victory Blvd., Dept. IEN, Burbank, Calif.



Bulletin 454

Noboursink, for holes from 1/16 to 1½ in., and Noburod, for rod ends from ⅛ to 1½ in., are new cutters in the company's line of burring tools. Both are made of high speed steel and are available in three maximum work diameters at ½, 1 and 1½ inches.

Two-piece construction permits the cone face to be cylindrically ground on a tool and cutter grinder or in a lathe with a tool post grinder. The half members are then locked in displaced position to provide radial relief. The two cutting teeth shear the metal and produce a smooth chatterless 90-deg. included angle finish without creating secondary burrs. Controlled cutter entry prevents snagging, seizing or excessive cutting.

Chips are expelled from the ground throats which extend to the tip in the hole burring tool and away from the work area in the rod and tool. List price ranges from $5.85 to $16.50 for the Noboursink and from $6.50 to $18.50 for the Noburod.

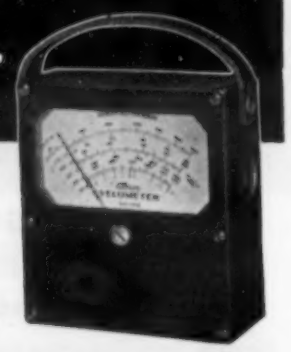
If you write maker identify as IEN - 9699

Very small drills with straight or spiral flutes, starting at 0.003 in. in diameter and ranging upward in 0.01 mm. steps, are now available from Louis Levin & Son, Inc., 3610 So. Broadway, Dept. IEN, Los Angeles 7, Calif. The drills are a part of the Sphinx brand line.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9700

READ AIR VELOCITIES *instantly... accurately... anywhere...*



...WITH THE

ALNOR VELOMETER

Alnor Velometer, a precision-built, self-contained, portable instrument, gives you instant, accurate readings of air velocities anywhere—in plants, mines, mills or laboratories. Measures speed of air flow through ducts, grilles, furnaces, spray booths or in the open. This rugged instrument needs no special care or delicate handling—anyone can use it and get accurate readings. Needs no calculations or reference charts. Available in a wide variety of scale ranges, and with a full assortment of jets and fittings for every application. You'll want full details and prices, so write for Bulletin 2448-G, Illinois Testing Laboratories, Inc., Room 517, 420 No. La Salle St., Chicago 10, Ill.

Alnor PRECISION INSTRUMENTS FOR EVERY INDUSTRY

If you write maker identify as IEN - 9701

Gummed Crepe Paper or lollypop wraps are no sticky problem for the BECK SHEET CUTTER

are you really stuck?

Charms and Dennison were . . . but both solved their sticky problems with Beck Automatic Roll Sheet Cutters . . . one cutting candy wrappers to close printed register . . . the other cutting gummed crepe paper.

In both cases, the Beck Automatic Roll Sheet Cutter does its work smoothly . . . economically . . . quickly. *And it can do that for you.* It reduced cutting costs and speeds up production. Its many attachments enable the Beck engineers to "tailor" it to your particular needs. For more information, write:

CHARLES BECK MACHINE CORPORATION
412 N. 13th Street Philadelphia 8, Pa.

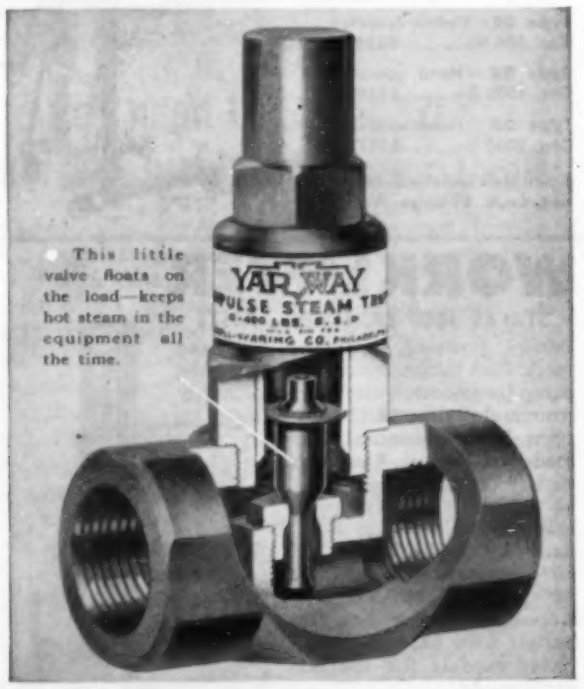
If you write maker identify as IEN - 9702

THIS LITTLE VALVE CAN SAVE YOU MONEY

Your steam-heated equipment can turn out more production because of this little stainless steel valve.

It is the only moving part in a Yarway Impulse Steam Trap, and *it floats on the condensate load.* When steam is turned on, the little valve opens wide . . . discharges condensate and air *continuously* and brings the equipment *to production temperature in the shortest possible time.* After that, it passes, with a pulsating action, all condensate as it forms—*keeps a maximum, steady temperature in the equipment.*

Result to you—more production per day.



Other Yarway Impulse Steam Trap advantages—small size, low initial cost, easy installation, low maintenance, stainless steel construction, and quick availability from over 200 local industrial distributors.

Over 900,000 Yarways have been sold to nearly all industries. Write for free Yarway Trap Book T-1740.

YARNALL-WARING COMPANY
122 Mermaid Ave., Philadelphia 18, Pa.

YARWAY | ***impulse steam trap***

If you write maker identify as IEN - 9704

Fielden TELSTOR

ELECTRONIC CONTINUOUS LEVEL INDICATOR

- *Accurate to ±2%*
- *Records Readings at Distances of Over a Mile*
- *No Moving Parts, Only One Radio Tube*
- *Low First Cost—Low Operating Cost*

The Fielden TELSTOR Electronic Level Indicator measures the levels of powders or granular solids, liquids, viscous fluids, or interface . . . almost any type of conducting and non-conducting material that flows . . . accurately and continuously. Operates on a change of capacity. No pneumatic or hydraulic piping to clog or corrode, no floats to stick or leak Gives dependable measurement over full length of electrode. Operates on materials subjected to pressure or vacuum. Available with dust-tight, weatherproof cast aluminum housing. Easily installed and serviced. Electrodes suitable to a variety of applications. Write for detailed information to Dept. E.

Robertshaw-Fulton
CONTROLS COMPANY

FIELDEN INSTRUMENT DIVISION
2920 N. 4th St., Dept. E, Philadelphia 33, Pa.

Dollar for Dollar—Your Best Instrument Value

If you write maker identify as IEN - 9705

▲ "Gold Medal" Extension Ladder and sturdy side rail type Ladder Jack support stage for fast, convenient window painting.

▲ "Gold Medal" Safety Extension Trestles support stages for interior painting.

When it comes to getting men off the ground safely you'll do better for them (and for yourself) with "Gold Medal" equipment.

Next time you're buying, *compare* . . . we'll be glad to show you why thousands of painting contractors insist on "Gold Medal" ladders and scaffolds . . . because they're made better to last longer and cut costs. And remember, you get the *right* equipment for *any* job because we have *all* types—made better to save you money.

- Ladders—Wood, Magnesium and Aluminum
- Scaffolds — Ladder, Rolling or Fixed in Steel and Aluminum
- Swinging Scaffolds — Light and Heavy Duty
- Trestles—Common, Extension and Adjustable Steel
- Stages
- Extension Planks
- Ladder Jacks
- Ladder and Scaffolding Accessories

Approved by Underwriters' Laboratories, Inc. Conform to U. S. Codes

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

THE PATENT SCAFFOLDING CO., INC.
38-21 Twelfth Street • Dept. IEN • Long Island City 1, N. Y.
Branches in All Principal Cities

If you write maker identify as IEN - 9707

Drilling - Variable speed machine for holes from 0.004 to 5/32 inch

Source: ELECTRO-MECHANO COMPANY
261 E. Erie St., Dept. IEN, Milwaukee 2, Wis.

$150 to $200

Micro Feed designates a new selective feed assembly for the company's previously developed sensitive drilling machine. A standard direct knob operated hand feed is employed for drills from No. 60 to 5/32 inch. A slow feed, providing a 4 to 1 reduction, permits safe hand feed that minimizes breakage in drills down to 0.004 inch. In addition to the new feed, the quill return counterbalance has been changed from an arm to a pulley and weight. Throat dimension is 4 in. with chuck to base maximum at 7 in. and overall height at 22 inches.

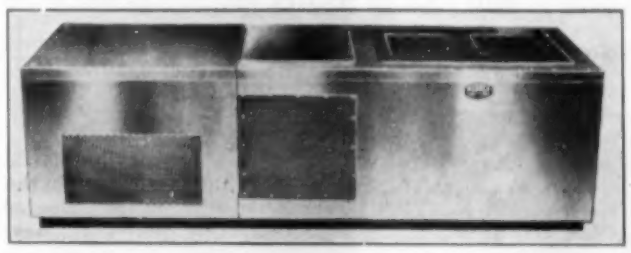
Drive, for the illustrated Model 105, is by a ⅛-hp. 110-volt universal motor operating at 6,000 rpm. in connection with a centrifugal governor. It can be adjusted, by moving a lever on the front of the housing, for stepless speed range between 1,000 and 10,000 rpm. or between 2,500 and 15,000 rpm. The governor keeps the speed constant while the machine is idling or drilling. Spindle stroke is through 1½ inches. An adjustable stop can be set to limit the stroke for given work.

The spindle and its integral motor are mounted in three sealed factory lubricated ball bearings. The assembly rides in quill bushings at the top and bottom in the machine bracket.

If you write maker identify as IEN - 9708

Testing - Environment chamber ranges minus 100 to plus 200 deg. F.

Source: WEBBER MFG. COMPANY
2740 Madison Ave., Dept. IEN, Indianapolis 3, Ind.



Model A-2-1-80-200-FH

Two compartments, each with 1 cu. ft. capacity, are assembled in the housing of this new environment test chamber. Each is independently controlled in a temperature range between minus 100 and plus 200 deg. F. to within ½ deg. F. A motor driven fan, in each chamber, recirculates the air through the chamber and over the refrigerating coils or heating elements to change the air at the rate of 500 times per minute. The fan motor is mounted externally.

Heat is applied by hermetically sealed moisture-proof low density electric elements. One refrigerant unit serves both chambers. Operation is controlled at a panel where standard automatic proportioning instruments are mounted. Construction is in stainless steel with the test chambers lined with copper. Overall dimensions are 96 by 24 by 30 inches.

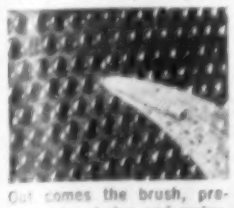
All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9709

ELLIOTT JIFFY GUN

The Jiffy Gun is a natural for cleaning sludge or soft deposit from small tubes as in condensers or heat exchangers. The job is easy and fast. Insert the nozzle into the tube end, push, and the released pressure shoots cleaning brushes or plugs through the tube. Air pressure can be used, but, water is recommended as the flushing action speeds the job. The long-lasting brushes of spirally wound nylon, cannot injure or stick in the tubes. Brushes and rubber composition plugs are available in required sizes. Contact your local Elliott representative or write Elliott Company, Springfield, Ohio.

Insert brush or plug in tube end . . . shove Jiffy Gun nozzle into tube, and push.



Out comes the brush, preceded by sludge and water.

Y4-9

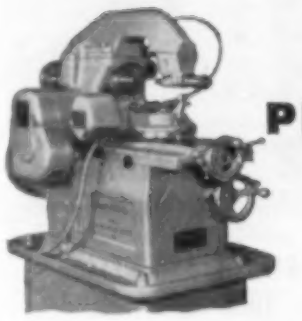
ELLIOTT Company

STEAM TURBINES • MOTORS • GENERATORS • DEAERATING HEATERS • EJECTORS • CONDENSERS • CENTRIFUGAL COMPRESSORS • TURBOCHARGERS • TUBE CLEANERS • STRAINERS

If you write maker identify as IEN - 9710

5416

CUT COST of PRECISION gear PRODUCTION



THIS FACT has been demonstrated time and time again

If you produce small, fine pitch, precision gears, up to 6" O.D. of the gear blank, use of the Hamilton Precision Gear Hobber will enable you to attain more gear precision with no sacrifice in gear production, or increased gear production with no sacrifice in gear precision . . . or both!

WANT FACTS?

Write for Hamilton Bulletin No. 5416.
Address The Hamilton Tool Company
905 Hanover Street,
Hamilton, Ohio.

IT'S A **Hamilton Tool**
USE IT WITH CONFIDENCE

If you write maker identify as IEN - 9711

HIGHER SPEEDS! FASTER GRINDING!

kipp AIR GRINDERS

MODEL JA
50,000 R.P.M.
$42.00
IN U.S.A.

Weight 12 ounces; length 6⅝ inches; chuck size ⅛ inch. Wheel guard removed for better illustration.

The RPM's stay up while grinding...not only when the grinder runs idle. That means better work—longer wheel life.

High speed grinding with small wheels was a Madison-Kipp development of the late twenties. It was born out of a pressing need in our tool room. Because tool room grinding problems are universal, we believe it will pay you to utilize Kipp grinders in your tool room as generally as we do in our own.

kipp

MADISON-KIPP CORPORATION
224 Waubesa St. • Madison 10, Wis., U.S.A.

If you write maker identify as IEN - 9712

conform to J. I. C. standards

RUGGED . . .

Where it counts most!

CARTRIDGE . . . metallic rod-wiper, packing, bushing in one unit.
RUGGED BODY . . . all steel end caps and barrel.
PISTON RINGS . . . step-cut joint, long life, minimum leakage.
PRESSURE . . . 2,000 psi heavy-duty . . . 3,000 psi non-shock.
SIMPLICITY . . . no tie-rods . . . no retainer rings.

hydro-line *Manufacturing Co.*
5610 PIKE ROAD • ROCKFORD, ILLINOIS

If you write maker identify as IEN-9713

HOW TO CHART
A BETTER SALES COURSE
WITH
GRIGOLEIT PLASTIC AND METAL TRIM HARDWARE

Improving a product's sales position is often a case of restyling old trim. The Grigoleit Company has men with outstanding experience in this field of design. What's more, Grigoleit has the proper facilities for producing your molded plastic handles, pulls, small plated stampings or metal trim, from either stock or custom tooling.

For prompt attention and early delivery, contact Grigoleit today!

THE GRIGOLEIT COMPANY
"Serving Industry for Twenty-five Years"
742 E. NORTH ST., DECATUR, ILLINOIS

PLASTIC AND METAL TRIM HARDWARE BY GRIGOLEIT

If you write maker identify as IEN-9714

General Container Engineering

CAN HELP YOU CUT PACKING and SHIPPING COSTS

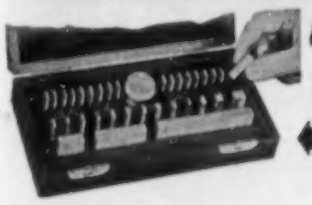
Send for free Booklet

ENGINEERED CONTAINERS FOR EVERY SHIPPING NEED

General Box
1815 Miner Street, Des Plaines, Illinois

If you write maker identify as IEN-9715

ULTRA-CHEX GAGE BLOCKS for Every Need!



Supplied in one Superior Accuracy
5 MILLIONTHS ± ACCURACY

34 BLOCK SET.....$125.00
(Shown) Code GADHI — Incl. Opt. Parallel

82 BLOCK SET.....$275.00
Code GHEYS — In Case

9 BLOCK SET
FOR INDIVIDUAL MECHANIC
$22.50
Opt. Parallel $5.00 Extra
Code GADFO

These Sets will supply the needs of any discriminating shop that must work to gage-block precision.

IMMEDIATE DELIVERY
Write for Illustrated Folder—Code GINVU

"Lustro-Chrome" MICROMETER

Take the GLARE out of Micrometer Reading with the New "Lustro-Chrome" MICROMETER

MEASURE TO 1/10,000th

No. 901C
0-1" Size with LOCK NUT and RATCHET and 10th Vernier as shown..... $13.25
Code GHAEF

All graduations are well-defined black lines on dull chrome surface for easier and surer reading, even in poor light. Guaranteed accurate within one half of a ten thousandth of an inch.

This tool with TUNGSTEN CARBIDE tipped anvils..... $15.75
Code GHAEF-CA

Drop-forged model with chrome finished micrometer head from $8.25 up.

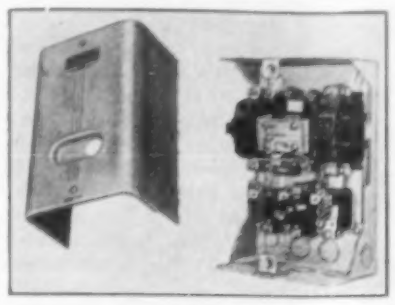
Ask for Micrometer Catalog—Code GINWY

GEORGE SCHERR CO., Inc.
COMPLETE LINE OF PRECISION INSTRUMENTS
200-EN LAFAYETTE ST. • N.Y. 12, N.Y.

If you write maker identify as IEN-9716

Motor Control - Contactor with 3-coil overload protection

Source: CUTLER-HAMMER INCORPORATED
315 N. 12th St., Dept. IEN, Milwaukee 1, Wis.



For specified use

The company announces availability of a new magnetic contactor for motor starting duty equipped with 3-coil overload relay so each of the lines in a three-phase supply is adequately protected. The new assembly mounts in the same enclosure as the company's previous contactor with two-coil protection. The heater coil, employed in the overload relay mechanism, can be mounted in any one of four positions, each varying the relationship of the coil to the thermal element and thereby varying the degree of heat to release the element for tripping action.

Current to the motor flows through the heater coil causing it to generate heat in relatively the same time and to the same degree as in the motor windings. The coil surrounds a thermal capsule consisting of a spindle or shaft within a stationary sleeve, the two being joined by a thin film of eutectic alloy.

The alloy melts at a given temperature to release a spring operated pawl device that maintains a constant rotating pressure against the shaft during normal operation. The spring turns the shaft within the sleeve tripping the relay contact and opening the main control circuit. The heater coils are available for full load motor current ratings to 25 amperes. The contacts will handle current required for NEMA Size 0 or Size 1 contactors coils to 600 volts.

If you write maker identify as IEN-9717

Fastening - Plastic tape and tool to secure electrical harness

Source: MINNESOTA MINING & MFG. COMPANY
900 Fauquier St., Dept. IEN, St. Paul 6, Minn.

Threads the tape

A roll of plastic tape is inserted in the circular magazine of the company's new Model E-2 taping gun and its end is led out to the gun nose. The tape, protruding from the end of the gun, is adhered to the wires of an electrical harness by thumb pressure. Then it is threaded around the bundle by moving the curved gun tip and is cut by depressing a thumb button. The end of the cut tape is pressed down to complete the job.

The slender tip serves as a convenient "needle" to thread the tape around the wires on a cable layout board or in spots that would be ordinarily difficult to reach. The gun takes a 36-yd. roll of ⅜-in. Scotch brand plastic electrical tape No. 33.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-9718

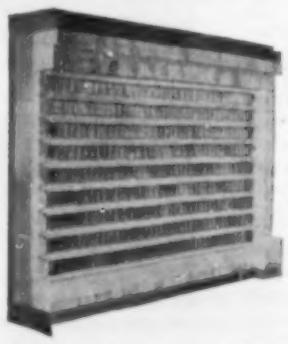
A RADIANT HEAT SOURCE, *Easily Installed*

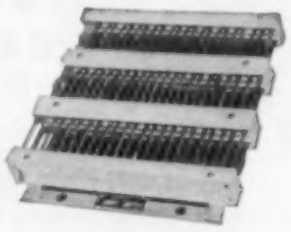
"FOLDED-and-FORMED" Heating Elements

are quickly, easily installed in furnaces, ovens, kettles, etc., to assure a heat source unequalled for quick rise to temperature; long-life efficiency; low-cost maintenance and repairs.

STANDARD RACKS

Size 12" x 12". Installed vertically or horizontally, side-by-side, end-to-end, or in banks, to meet K. W. requirements. Five-year guarantee, at temperatures to 750°F. or 1300°F.





CUSTOMBUILT RACKS

Available in wide range of sizes and combinations, to fit any flat or curved area, to provide maximum K. W. at temperatures to 1850° F.

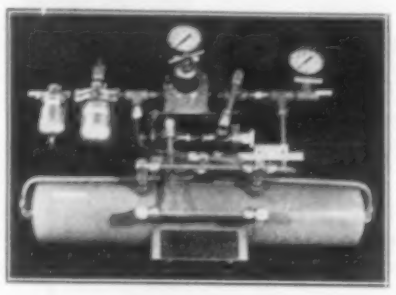
Hundreds of different applications are demonstrating the outstanding efficiency and economy of "F-and-F" Heating Elements. You, too, can use them *profitably!*

TRENT INC.
Electrically Heated Industrial Equipment
247 LEVERINGTON AVE. PHILA 27, PA.

If you write maker identify as IEN-9719

Pump - Reciprocating pneumatic will double inlet pressure at outlet

Source: DAYTON ROGERS MFG. COMPANY
2824 13th Ave. S, Dept. IEN, Minneapolis 7, Minn.



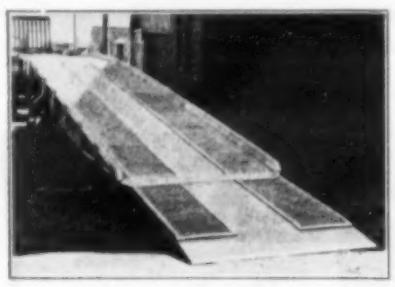
Adjustable output

Compressed air from a shop source enters a filter and lubricator at the left hand side of this new Model H-4 pneumatic booster pump. It applies in a reciprocating opposed cylinder pumping element to increase the inlet pressure at the outlet connection on the right hand side. The pump will bring pressure up to 185 lb. in a 12-gal. tank in about 1 min. employing 95-lb. input air when the tank is precharged at 100 pounds. The assembly is self-contained on a common mounting plate so the unit can be bolted to a press or machine. It measures 24 in. in overall length by 21 in. in overall clearance height.

If you write maker identify as IEN-9720

Floors - Magnesium ramp spans from ground to a car or truck

Source: MAGNESIUM FABRICATORS INC.
217 Center St., Dept. IEN, Linwood, Mich.

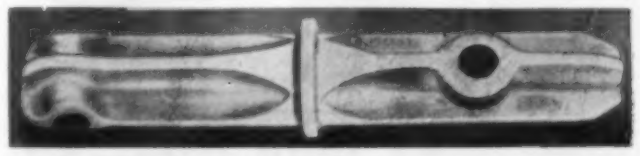


Specifications on request

Illustrated is a new sectional design of hydraulically operated yard ramp. It measures 35 ft. in length by 5 ft. in width and provides load capacity of 6 ton. The ramp is available to specification in 30 to 40 ft. lengths and in 4½ to 6-ft. widths with load capacity at 3 to 8 ton. The bottom section is hinged. Extruded magnesium safety curbs are on both sides. The trucking surface is covered with steel mesh to provide firm traction.

If you write maker identify as IEN-9721

Malleable iron is employed in manufacture of a new coupling pin that now is included as standard equipment on all



Ezebilt steel panel scaffolds made by Universal Mfg. Corp., Dept. IEN, Zelienople, Pa. The fluted design assists in taking a scaffold down by preventing the panel legs from "freezing" around the pins. The pin design provides positive bearing surface on the panel legs for safe erection.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-9722

thousands of users PROVE "HI-TEMP" C-5 THREAD COMPOUND IS BEST FOR ALL STUD THREADS and STAINLESS STEEL APPLICATIONS

✔ speeds up dis-assembly time
✔ prevents stud breakage
✔ eliminates pitting of stainless steel

NO MORE FROZEN OR GALLED STUDS EVEN AT 1800°F

Let us SEND you a FREE SAMPLE so you can PROVE to YOURSELF that C-5 will lick your toughest stud breakage problems!

To assure easy maintenance on products having threaded assemblies many leading product engineers have specified the use of Fel-Pro C-5 as an anti-seize coating on stud threads prior to final production line assembly.

Fel-Pro's exclusive Colloidal-Copper formula allows for easy separation and reduces stud breakage of threaded assemblies after long exposures to extreme temperatures. It eliminates pitting of stainless and alloy steel even where dissimilar metals are joined.

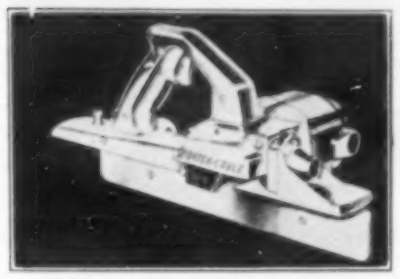
Conduct your own tests with C-5 "Hi-Temp" at our expense. Write on your company letterhead for Free Sample and complete data sheet TODAY!

FELT PRODUCTS MFG. CO. 1523 Carroll Ave. • Chicago 7, Ill.

If you write maker identify as IEN - 9723

Wood Working - Electric plane for portable use, 25,000 rpm. free

Source: PORTER-CABLE MACHINE CO.
36 Exchange St., Dept. IEN, Syracuse 8, N. Y.



Bulletin A-1003

Cut width is a little over 2⅜ in. and cut depth is a little under ⅛ in. for this new Model 126 motor driven portable plane. The unit can be set to cut square or to a bevel setting, maximum at 45 deg. in one direction and 15 deg. in the other. The spiral cutter is mounted on the spindle of the universal 110-volt bearing motor. A deflector directs the chips down and away from the operator and the work.

Depth is controlled by a thumb adjustment and can be changed while the plane is in operation. Control centers at a trigger switch in the main handle. Removable caps provide access to the commutator brushes. The tool measures 16 in. in overall length. It weighs 9¼ lb. and lists at $95. A complete kit, including the plane, sharpening attachment and carrying case lists at $124.50. The sharpening attachment alone is $19.50. The spiral cutter is $10.50.

If you write maker identify as IEN - 9724

Plastic - Extruded sheet, white translucent and transparent form

Source: ROHM & HAAS COMPANY
222 Washington Sq., Dept. IEN, Philadelphia 5, Pa.

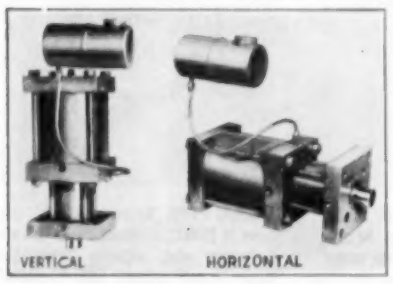
Technical data upon request

Plexiglas is now available in the form of extruded sheets in four thicknesses from 0.060 to 0.125 in., in widths of 36 and 48 in. and lengths of 48 to 96 inches. Price is considerably lower than the previous cast acrylic plastic.

If you write maker identify as IEN - 9725

Press - Pneumatic power head for light riveting, staking, pressing

Source: AIR-HYDRAULICS INCORPORATED
218 Belden Road, Dept. IEN, Jackson, Mich.



Special sizes to order

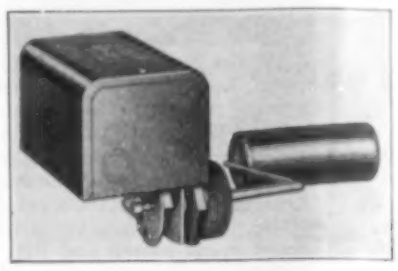
Model D-50 is a new assembly rated at 5-ton pressure on a standard 1-in. stroke. It can be assembled singly or in multiple in any position in equipment provided by the user. It operates on air pressure to 150 lb. and has a ratio to 100 to 1. Overall dimensions are 6½ by 6½ by 16 inches. The ram measures 1½ in. in diameter. Weight is about 100 pounds.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9727

Control - Float operated switch sequences operation of two tank pumps

Source: SQUARE D COMPANY
4041 N. Richards St., Dept. IEN, Milwaukee 12, Wis.



Corrosion resistant

Class 9038 Type CG is a new float operated switch to provide for alternate or sequence operation of two condensate pumps serving a common return tank. The switch eliminates the danger of long standby for either of the pumps. It also provides for additional pumping action, by starting the second pump, in cases where extra capacity under peak loading is required.

Assembly is on the side of the return tank in a threaded connection. Provision is made to adjust the float position for either right hand or left hand operation and to adjust for leveling and for the limits of float travel. A position indicator and a dial assist in obtaining the correct settings. The switch will operate under a pressure of 50 lb. per square inch.

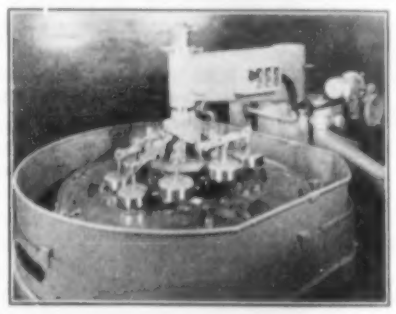
The switch structure consists of two double-pole double-break visible and vertical silver contact mechanisms with positives snap toggle operation. The assembly can be specified for 110 to 550-volt circuits. The contacts can be set for either opening or closing action on liquid rise.

Immersed working parts are made of brass, copper or stainless steel. The housing is a steel frame with a slip-on steel cover finished in gray enamel and built to NEMA I Specifications. Graphite coated asbestos provides a water tight seal in the stuffing box.

If you write maker identify as IEN - 9728

Lapping - Single face machine applies work on bonded abrasive lap

Source: NORTON COMPANY
36 New Bond St., Dept. IEN, Worcester 6, Mass.



Work makes single pass

The operator of this new machine, Model 36-F in the Hydrolap line, removes finished pieces from a ring of work holders and places pieces to be lapped in the holder recesses as the holders ride around into loading and unloading position at the right hand side of the circular lapping table. Weights, that ride the work pieces, are lifted by cam action at the loading station and then are returned to apply pressure on the work as the holders move around over the lapping surface. Grit is washed away by a stream of filtered coolant.

Truing is by a diamond held in an arm on the side of the machine column. The arm is operated by a variable speed motor drive to pass over the surface of the lap and return. An opening is provided in the work holder for the operation without requiring removal of the holder ring. The machine can be arranged for continuous automatic action.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9730

NOW—A FREE BULLETIN 5423

Tells HOW SPECIAL PORTELVATOR®
THE HANDY HAMILTON PORTABLE ELEVATING TABLE

● is used throughout industry to do the heavy lifting, positioning, and transporting jobs which have harassed production executives since the word "production" assumed its present meaning.

Find out how others have solved problems parallel to yours.

WRITE FOR FREE BULLETIN 5423
ADDRESS THE HAMILTON TOOL COMPANY
905 HANOVER STREET, HAMILTON, OHIO

IT'S A Hamilton Tool
USE IT WITH CONFIDENCE

If you write maker identify as IEN - 9731

FEDERAL PRESSES
28 YEARS OF QUALITY CONSTRUCTION

This Federal #44 has generous, "oversize" dimensions, making it ideal for light, bulky work that small standard presses can't handle. Note its *extra* shut height, *extra* throat depth, *extra* ram and bed areas. Typical Federal workmanship and quality. Available in flywheel or geared models—also in 26-ton size. High speed controls, optional.

Write for new catalog showing complete line. Six to 80-ton capacities.

NO. 44
FLYWHEEL TYPE
35-ton Capacity

THE FEDERAL PRESS COMPANY
503 Division Street, Elkhart, Indiana

If you write maker identify as IEN - 9726

Make your Own

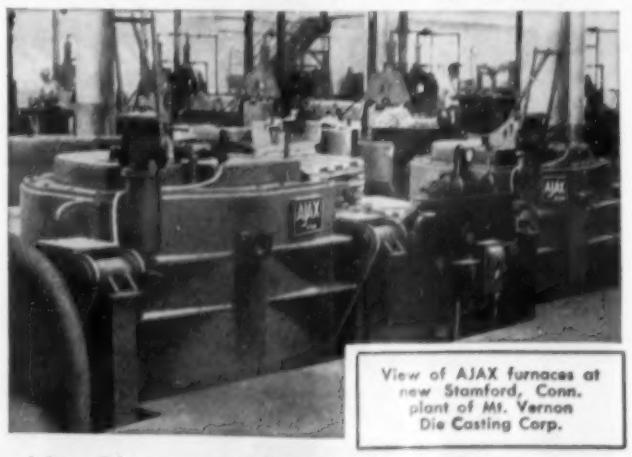
BUSCHMAN CONVEYOR SYSTEM...
Gravity or Powered

Your crew, using Buschman standard components, can set up a conveyor system tailored to your needs. Buschman features make set-up or rearrangement fast and easy. Aluminum or steel sections are available in a complete range of widths and wheel or roller spacings. Powered belt, live roller, slat conveyors, etc. can be made from a wide selection of sizes, types and capacities.

PRODUCE MORE ... FOR LESS
Buschman Conveyors
C-125-EWB
Write today for literature.

REPRESENTATIVES IN PRINCIPAL CITIES
THE E. W. BUSCHMAN COMPANY
4447 Clifton Avenue • Cincinnati 32, Ohio

If you write maker identify as IEN - 9729



View of AJAX furnaces at new Stamford, Conn. plant of Mt. Vernon Die Casting Corp.

Mt. Vernon Die Casting Corp. says
"WE HIGHLY RECOMMEND AJAX INDUCTION FURNACES"

"After an experience of more than 5 years in the use of AJAX furnaces in our Mt. Vernon plant, we are convinced that economy of operation has made them well worth while. We intend to continue installing them till all our die casting machines are fed by AJAX furnaces."

Send for reprint of Article Featuring This Installation

AJAX ENGINEERING CORP., TRENTON 7, N. J.

AJAX TAMA-WYATT INDUCTION MELTING FURNACE

If you write maker identify as IEN - 9732

To Identify Stainless Steels

send for your Chart *Today!*

To more easily identify stainless steels that may have become mixed in stock—or stainless scrap—use Carpenter's new chart for segregating stainless steels. It diagrams and explains how and when to use each of 11 tests. Typical reactions are given for the nitric acid, magnet, spark, hardness, muriatic acid, sulphur spot, nickel spot, and stabilization tests. Return the coupon below for your copy now.

THE CARPENTER STEEL COMPANY
151 W. Bern St. • Reading, Pa.

Gentlemen: Without obligation, please send me your new chart for identifying Stainless Steels.

NAME _____ TITLE _____
(Please Print)
FIRM _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

If you write maker identify as IEN-9733

MARSH QUALITY

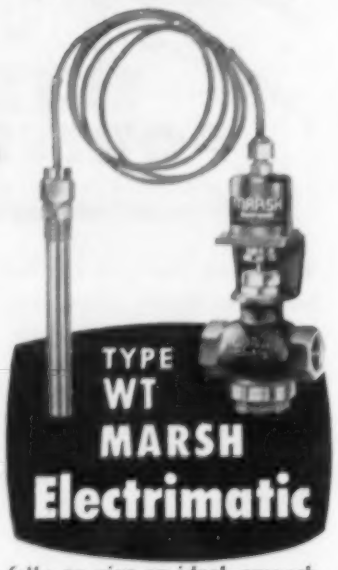
. . . in a Temperature-actuated

REGULATING VALVE

Smooth, modulating control

— for brine lines in cooling systems

— for condensers where pressure line is not desired



A temperature actuated regulating valve you can depend on—the Marsh-Electrimatic Type WT for pressures up to 150 psi; water, brine or steam. It opens as temperature rises, closes as temperature falls, to give an ideal, smooth, modulated control. Can be mounted in any position; serviced without breaking connections. Seat beads are monel to eliminate wire drawing. Sturdy, two-ply bellows assures extra service life. Temperature ranges of 20°F.-60°F.; 60-100, 100-140, 140-180, 160-220. All standard sizes from ⅜" through 4". All styles of temperature bulbs.

Ask for latest data

MARSH INSTRUMENT CO. *Sales affiliate of Jas. P. Marsh Corporation*
Dept. A, SKOKIE, ILL.

If you write maker identify as IEN-9734

How a 'Sexauer' Easy-Tite faucet washer costing pennies can save you $115.22 a year!

A tiny, 1/32" faucet leak wastes 95,040 gallons—*$24.14* worth*—of water yearly.

Hot water leakage is even costlier . . . Fuel waste adds upward to *$91.08*** more to the loss. Total down the drain: *$115.22.*

And this is the dollar loss caused by only *one* pinpoint leak!

Fuel Waste		Water Waste	Total Waste
Oil (792 gals.)	**$91.08	$24.14	$115.22
Coal (9,879 lbs.)	88.91	24.14	113.05
Gas (84,411 cu. ft.)	84.81	24.14	108.95

*Water costs (figured at $1.90 for 1,000 cu. ft.) authenticated by Hackensack Water Co. **Fuel costs authenticated by American Gas Association.

Save money; cut costs; stop leaks with dependable 'Sexauer' Easy-Tite faucet washers.

Built like a tire with Fiberglas reinforcement

Easy-Tite faucet washers are made of a special du Pont product, instead of rubber, and reinforced with Fiberglas. The result is a washer that resists the closing squeeze that splits and mushes ordinary washers. And Easy-Tites withstand destructive heat (up to 300° F. by test). These features explain why *'Sexauer' Easy-Tites outwear ordinary faucet washers 6 to 1!*

By avoiding labor on those 5 additional repairs, Easy-Tites cut today's high maintenance costs 83⅓%! But Easy-Tites not only save water, fuel, labor; they also prolong the life of expensive fixtures.

FREE CATALOG—Easy-Tite faucet washers are just part of the line of over 3000 'Sexauer' Triple-Wear plumbing repairs parts and patented precision tools.

Get complete information on Easy-Tites and other cost-cutting 'Sexauer' materials. Send for our FREE, new 118 page Catalog H. Fill in and mail the coupon today.

J. A. Sexauer Mfg. Co., Inc. Dept. K-94
2503-05 Third Ave., New York 51, N. Y.

Gentlemen: *Please send me a copy of your FREE, new 118 page Catalog H.*

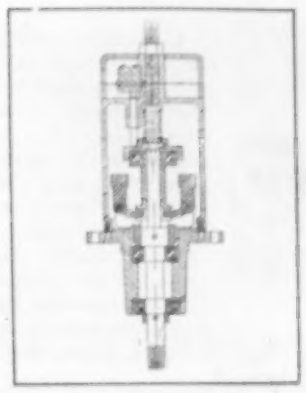
My name.....Title.....
Company or Institution.....
Street.....
City.....Zone.....State.....

SEXAUER
WORLD'S LEADING SPECIALISTS IN PLUMBING AND HEATING REPAIR PARTS

If you write maker identify as IEN-9736

Switch - Centrifugally operated, actuates circuit to stop over-speeding

Source: MASSEY MACHINE CO.
802 Pearl St., Dept. IEN, Watertown, N. Y.



Catalog OS-254

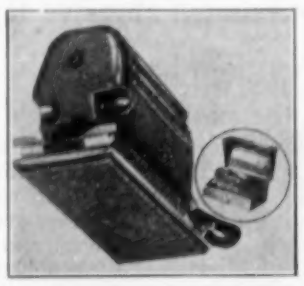
The drive spindle, projecting from the housing base of this new Type OS centrifugal switch, connects to a rotating member on a machine that is to be guarded against over-speeding. Rotation of the ball bearing spindle drives a set of weights that tend to move outward from center and lift a ball bearing spool against the action of a spring. The spring can be set to permit the sleeve to move upward and operate a push button switch mounted inside the housing at a predetermined rotating speed.

The assembly is available for specified speeds to 10,000 rpm. Its main housing measures 3 in. in diameter. Overall height from the mounting flange to the top of the adjusting screw is 6½ inches. The driving spindle is threaded at its lower end and measures ½ in. in diameter. Switch connections are made through a ½-in. conduit connection near the top of the housing. The switch can be specified normally open or normally closed. Its contacts are rated for a standard control circuit.

If you write maker identify as IEN-9737

Sanding - Portable electric tool reciprocates in straight line action

Source: WEN PRODUCTS INC.
5808 Northwest Highway, Dept. IEN, Chicago 31, Ill.



About $17

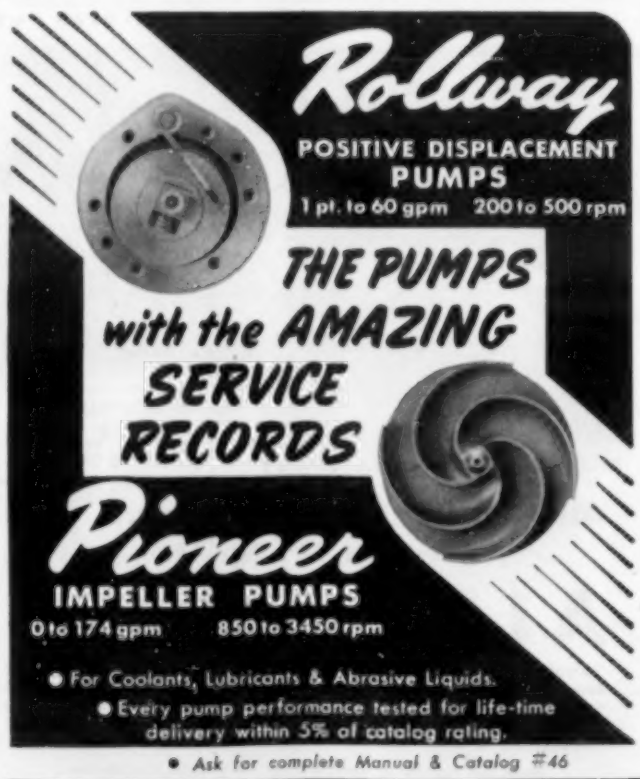
Model 303 is a new motor driven portable sanding tool with a pad travel of about ⅛ in. under load. It presents a sanding area measuring 2½ by 5½ inches. It is driven by a 110-volt 60-cycle ac. motor for 14,400 strokes per minute. The tool weighs 2½ pounds. Sand paper or polishing cloth is secured in a self-tightening clamp that snap locks in position. A kit, including six sheets of garnet and aluminum oxide paper and two polishing cloths, lists with the tool at about $17.

If you write maker identify as IEN-9738

A strapping cutter and a binding tool are packaged in a steel carrying case. It measures 12½ by 12½ by 4 in. and also provides space for a 200-ft. coil of metal strapping and a supply of Steelbinder seals. The strapping is available from stock in ⅝ to ¾-in. widths and in 0.015 to 0.025-in. thickness in various metals. The complete kit is known as No. 157. It is intended particularly for service and maintenance use. A. J. Gerrard & Company, 1950 Hawthorne Ave., Dept. IEN, Melrose Park, Ill., can tell you more about it.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-9739



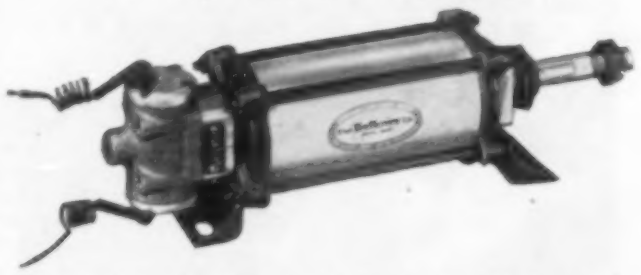
• *Ask for complete Manual & Catalog #46*

Headquarters
14300 Tireman
Detroit 28, Michigan
•
(FACTORY
Paris, Kentucky)

DETROIT HARVESTER *Co.*
PIONEER PUMP *Division*

If you write maker identify as IEN-9740

AIR CYLINDER WITH CHOICE OF BUILT-IN VALVES



The Bellows Air Motor—the only air cylinder with *built-in* valve and operating controls — now offers a choice of six separate valving arrangements. Now the engineer can choose the method of valving he prefers and still have all the advantages that integral construction means: jet-quick action, compactness, sure-fire control, simple installation.

Learn more about this newest development in the Bellows Air Motor. Write for your copy of Bulletin CL-50, just off the press. Address Dept. IEN-954.

The Bellows Co.
ESTABLISHED 1911
AKRON 9, OHIO
701A

If you write maker identify as IEN-9741

When it has to Run for Years and Years

WITHOUT FAILURE

MAKE IT A LEIMAN VACUUM AND PRESSURE PUMP

Leiman users say this:

"Almost continuous operation, 24 hours a day for 21 years"

"Using Leiman pumps on 350 machines. No pump has given a moment's trouble"

4-WING TYPE. Vacuums to 20"; pressures to 15 lbs.; displacement to 162 cfm. Wings take up their own wear, insure positive pressure or vacuum.

2-WING TYPE. Vacuums to 29.9"; pressures to 25 lbs.; displacement to 40.8 cfm. Automatic wing adjuster forces steel blades to meet cylinder wall, no sticking.

Write for 16-page catalog and blueprints of typical applications on Leiman rotary positive pumps—choice of industry since 1889.

SEE OUR CATALOG IN SWEETS FILE

LEIMAN BROS., INC.
166 Christie Street, Newark 5, N. J.

If you write maker identify as IEN-9742

. . . gives work platform of expanded metal at any elevation from one foot above floor on up. Gets to the hard-to-reach places inside or outdoors. Ball-bearing casters (locking type) make it easy to maneuver. Tubular steel; electrically welded. Patented. U. L. approved.

RENT OR BUY. Distributors in principal cities.
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Write for Catalog. Address Dept. L-8

GETS TOP UP IN THE WORLD
BIL-JAX INC.
Archbold, Ohio

If you write maker identify as IEN - 9743

INSTALL BURT F. E. F. POWER VENTILATORS

FOR MAXIMUM

EXHAUST

For fast, localized removal of high heat, smoke, fumes and dust, the Burt F.E.F. (Free Exhaust Fan) Ventilator does an outstanding job. Its absolute free opening channels air vertically upward at high velocity. Its specially designed Burt Axial Flow Fan provides a high volume of air delivery with efficiency and economy. Seven sizes and seventeen motors provide wide flexibility. See Sweet's for Burt F.E.F. data or write for Bulletin SPV-18.

FAN & GRAVITY VENTILATORS • LOUVERS • SHEET METAL SPECIALTIES

The Burt Manufacturing Company

909 S. High Street, Akron, Ohio

MEMBER POWER FAN MANUFACTURERS ASSOCIATION

If you write maker identify as IEN - 9744

MORE PRODUCTION...
.. GREATER ACCURACY..
.....LOWER COSTS!

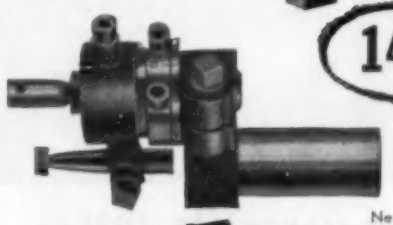
With

R AND L TOOLS

TURNING TOOL

Changes from right to left in ten seconds . . . Replaces an assortment of fourteen separate tools. It can be used for rough as well as finished cuts, meeting the most difficult job requirements.

14 TOOLS IN 1



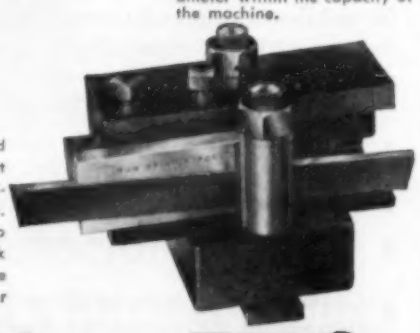
RECESSING TOOL

Newly designed . . . available in three standard sizes, (5/8", 3/4", and 1" shank.) Adjustable to operate on both internal and outside diameters . . . with spindle running right or left. Each tool can be adjusted to handle any diameter within the capacity of the machine.

IT'S NEW!

UNIVERSAL TOOL POST

Precision manufactured to hold square or flat tools, which can be adjusted in all directions. Can be used close to chuck, on front or back cross-slide with spindle running forward or backward.



CUT OFF BLADE HOLDERS AND CUT OFF BLADES

Specially designed and flawlessly made to fit R and L UNIVERSAL TOOL POST. Holders can be set to cut off work at close to chuck as desired.

Write for Catalog

TURNING TOOL • TAP AND DIE HOLDER (Releasing or non-releasing—also furnished for Acorn Dies) • CARBIDE OR ROLLER BACKRESTS • UNIVERSAL TOOL POST • TURRET BACKREST HOLDER • CUT-OFF BLADE HOLDER • RECESSING TOOL • REVOLVING STOCK STOP • FLOATING DRILL HOLDER • KNURLING TOOL

RIGHT R AND L LEFT TOOLS

1825 Bristol Street
Philadelphia 40, Pa.

If you write maker identify as IEN - 9746

Thermostat - Controls water flow in pressurized engine cooling jacket

Source: ROBERTSHAW-FULTON CONTROLS CO.
Box 400, Dept. IEN, Knoxville, Tenn.

For truck engines

Power-Pill trade names a new thermostat employing a wax-like composition that expands as it melts under rising temperature. The increase in volume provides pressure sufficiently in excess of that in a pressurized engine cooling jacket so the thermostat valve opens without difficulty to permit water to circulate through the engine radiator.

The new unit supplements the company's previously developed bellows type thermostat that have been in use for some time in pressure-free engine cooling circuits.

If you write maker identify as IEN - 9747

Doors - Pneumatic safety stop for motor operated service doors

Source: KINNEAR MFG. COMPANY
Fields Ave., Dept. IEN, Columbus 16, Ohio

Data Sheet Number SR-24

The company has recently improved design of the rubber air chamber that applies across the width of the bottom bar of its motor operated vertical rolling doors and grilles. The device protects the door and operating personnel in the event that the door contacts an obstruction while it is closing. The closing movement compresses the air chamber and actuates a switching device that causes the drive to stop or to immediately reverse and move to open position. Application can be made on doors now in service and on new units.

If you write maker identify as IEN - 9748

Gage - Micrometer reads diameter of chamfers to 1 inch

Source: ACME INDUSTRIAL CO.
200 N. Laflin St., Dept. IEN, Chicago 7, Ill.

Bulletin 106

Model 127 is a new micrometer gage. It applies in chamfers with 90 to 127 deg. included angle to read the chamfer diameter and to simplify depth computing. The gage reads the same as a standard depth micrometer. A master check bar, with known indicated end diameter and chamfer, is supplied with each gage to check its calibration. Packaging is in a felt lined case.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9749

In this TUFFLEX kit! You may find your key

Here's your opportunity to see—feel—and test Tufflex—the modern cellulose cushioning fiber! Product designers in many industries are finding Tufflex the key to product improvement. Tufflex combines the virtues of a soft, fleecy material with amazing strength and toughness. It die-cuts with clean, true edges—doesn't shred or pull apart. Tufflex is also efficient as an insulation or as a sound deadener. Send for your FREE Tufflex kit today! Write Wood Conversion Company, Dept. 126-94, First National Bank Building, St. Paul 1, Minnesota.

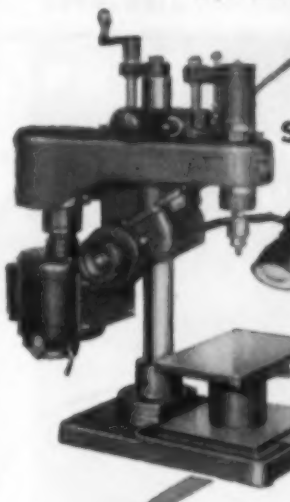
Keep your eyes on **TUFFLEX***

*Reg. U. S. Pat. Off.

Guaranteed by Good Housekeeping

CELLULOSE CUSHION PADDING

If you write maker identify as IEN - 9750



PRECISION

SMALL HOLE DRILLING

Should always be done on the

HAMILTON VARIMATIC®

STURDY
BENCH TYPE
VARIABLE SPEED
SUPER SENSITIVE
PRECISE

For complete information write for our FREE Bulletin No. 5413. Address The Hamilton Tool Company, 905 Hanover Street, Hamilton, Ohio.

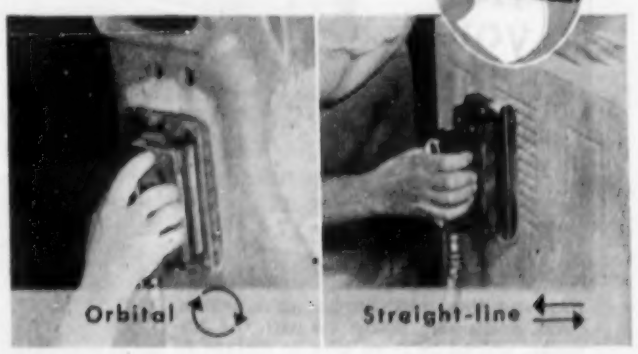
IT'S A Hamilton Tool

USE IT WITH CONFIDENCE

If you write maker identify as IEN - 9751

NOW! Air Sanders for every sanding need

SUNDSTRAND



Yes! Now you can have Sundstrand Air Sanders for every type of sanding operation . . . orbital for *fast material removal*, straight-line for *finer finishes*. New orbital model is compact, single-pad machine which operates at speeds up to 6000 cycles per minute. Unique pad control permits sanding up to moldings and edges . . . won't bounce off. Convenient palm lever controls air . . . sander will operate on only 50 pounds. Straight-line machines range from a compact single-pad model to a heavy-duty, two-pad machine for large area sanding and production line techniques. All have built-in water attachments for wet sanding operations. See your supplier for a demonstration.

SUNDSTRAND MACHINE TOOL CO., Pneumatic Division, Rockford, Illinois

SUNDSTRAND

A name to remember in **AIR SANDERS**

If you write maker identify as IEN - 9752

Check JOHNSON wide-rehandling clamshells

All-welded, smooth, fast-cleaning

Light-weight, sturdy, Johnson wide-rehandling clamshells assure big payload performance in loose materials. Big-diameter sheaves, with sealed-in needle bearings, reduce friction loss, deliver full digging power to the cutting lips. Hard manganese cutting edge, welded to lips, toughens with use. Wide-rehandling clamshell is available in 10 sizes from 3/8 to 3 cu. yds. Other clamshells in Johnson line include general-purpose, and heavy-duty-digging types.

mail to: **C. S. JOHNSON CO.,** CHAMPAIGN, ILLINOIS (Koehring Subsidiary)

Send more information on _____ cu. yd. wide-rehandling clamshell bucket

NAME _____

COMPANY _____

STREET _____

CITY, STATE _____ 2418 IEN

If you write maker identify as IEN - 9753

When blast nozzles are protected with BORIUM inserts you save many ways: Because BORIUM (pure tungsten carbide) is so very hard and wear-resistant, orifices hold original size many times longer; high velocity, harder-hitting blast particles stay tightly concentrated on target for quicker clean-ups. Less compressed air is used, cutting power bills. One BORIUM nozzle outlasts hundreds of cast iron nozzles, when used with most common abrasives; avoids frequent nozzle changes! Why not try them?

Ask for Free Circular showing standard and special BORIUM nozzle designs, or send blueprints for quotation.

STOODY COMPANY
11938 E. Slauson Avenue
Whittier, California

If you write maker identify as IEN - 9754

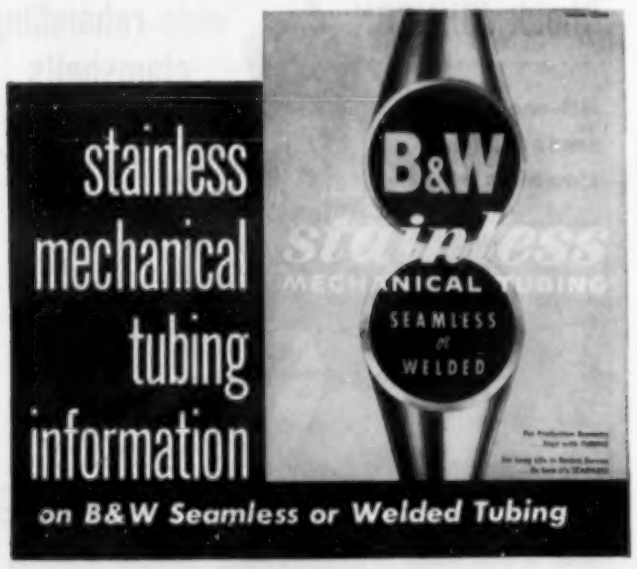
Flowing lime, soda ash, salt cake, starch, clays, and similar materials with the Airveyor, unloading from cars to storage or in-plant conveying is the simplest, most economical conveying method for the handling of mill-supply chemicals in the process industries.

Conveying by air has been a specialty of the Fuller Company for over a quarter of a century. Experience places it in a top position to recommend and design a system which will give you the most economical results.

If you are interested in keeping conveying at a minimum, if you want to improve your operating balance sheet, talk to a Fuller engineer. A study of your operations will cost nothing, may point the way to consistently profitable operation and a smoother production flow.

FULLER COMPANY, Catasauqua, Pa.
Branch Offices: Chicago • San Francisco
Los Angeles • Seattle • Birmingham A-194

If you write maker identify as IEN - 9755



Send for B&W's new bulletin. It's got plenty of information—analyses, mechanical properties, processing data, finishes, sizes, shapes—backed by plenty of experience.

Ask for it by number—TB 365.

TA-4071 (LM)

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION
Beaver Falls, Pa. — Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing

If you write maker identify as IEN - 9756

Furniture - Steel work bench has 12 gage top, steel drawer, base

Source: AURORA EQUIPMENT CO.
422 Cleveland St., Dept. IEN, Aurora, Ill.

Series 210

Sixteen new models have been added to the Modern-Flow line of steel work benches, previously described IEN-8956-49. The bench is available in 5 and 6 ft. lengths and can be fitted with a 12-gage steel top, a Masonite covered steel top or one made of laminated wood to meet given requirements.

The base extends up from the floor to form a shelf with a rear flange. The steel top is formed down at the front and up at the rear in a one piece unit under which the roller mounted drawer rides in a steel housing. There is provision for a padlock on the drawer and for electric power outlets.

If you write maker identify as IEN - 9757

Switch - Snap acting design for low to high temperature dc. control

Source: MICRO SWITCH DIVISION
30 E. Spring St., Dept. IEN, Freeport, Ill.

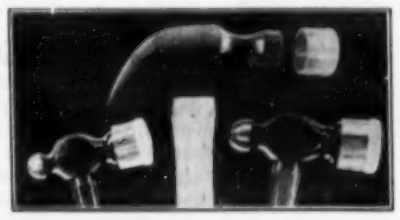
Adjustable

Type IHTI is a new unit in the company's line of push button operated snap acting switches. It is suited for operation in a temperature range between minus 50 and plus 1,000 deg. F. At the latter temperature, it will carry a resistive load of 2 amp. on 28-volt dc. with a service life of 9,000 operations or better. The switch is designed for panel mounting and is equipped with two thin hexagon nuts and two locknuts on its threaded bushing.

Operating force is 10 to 20 ounces. Free travel is 0.065 in. maximum. Differential travel is 0.01 in. maximum and over travel is 0.125 in. maximum.

If you write maker identify as IEN - 9758

Lempco Automotive, Inc., Dept. IEN, Cleveland 27, Ohio, announces an injection molded nylon plastic cap to fit standard ball peen and claw hammers. Application of the cap converts the hammer into a soft face unit for working on surfaces that must not be dented. Two sizes are available for 8 and 16-oz. hammers. Three additional sizes fit 6, 12, and 24-oz. hammers.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9759

A PAID NEWS ADVERTISEMENT BY CARBORUNDUM COMPANY

MOUNTED WHEELS AND POINTS

How they speed production told in free booklet

You can rough or finish grind, deburr, chamfer, break corners . . . do dozens of production line operations fast, safely with Mounted Wheels and Points by CARBORUNDUM. How they save hours of production time over slow, tedious hand finishing operations is shown in this free booklet. The wide range of shapes and sizes of these abrasive wheels permits grinding and finishing on any surface—flats, contours, hard-to-reach areas, inside diameters of all types. You can use them with maximum economy on portable grinders or all types of internal grinders. This booklet, "Mounted Wheels and related Abrasive Products by CARBORUNDUM" gives you complete information . . . tells you what types of abrasives are recommended for all kinds of metals and some non-metallics. Charts show the complete range of shapes and sizes available. Grading recommendations for many jobs are included—for both high speed portable grinding and internal grinding. A special section describes MX® Mounted Wheels . . . the wheels that finish as they cut. Another section covers coated abrasive products by CARBORUNDUM for rapid finishing with portable equipment.

Send for your free copy of this helpful booklet. Use the inquiry form provided by this publication—or write **The Carborundum Company,** Dept. IEN 81-49, Niagara Falls, New York.

"Carborundum" and "MX" are registered trademarks which indicate manufacture by The Carborundum Company, Niagara Falls, N. Y.

81-49

If you write maker identify as IEN - 9760

Does more jobs easier and quicker than any other tool! *Locks* to work with *Ton-Grip!* Actually is a locking wrench, super-pliers, pipe wrench, hand vise, toggle press and clamp—all in one trim, handy tool. Built to produce—Built to last!

MANUFACTURED ONLY BY
PETERSEN MFG. CO.
DEPT. IEN-9, DE WITT, NEBR.

If you write maker identify as IEN - 9761

an ACCO product

Campbell Abrasive Cutter

Here's a versatile cutter

• This new CAMPBELL Model 28 SEVER-ALL Abrasive Cutter has the capacity for a wide variety of cutting operations. Ideal for quick cutting of all materials in metal-working and fabricating shops. Portability feature makes it especially suitable for construction work.

Important Features Include:

1. Work clamped on both sides of cut by hand-operated, self-centering work holders.
2. Can be supplied with foot-operated treadle.
3. Time of cut is approximately 3 seconds per square inch of material.
4. Cutting wheel completely enclosed during operation except for opening to clear work. All steel construction with full safety protection for operator.
5. Lowering of guard permits accurate location of work, permits long pieces to be placed in machine without threading through. Can be supplied with work stop.
6. Capacity—Solids up to 4" x 4" square; angles and channels to 8"; tubes and pipes to 4" O.D.; 4" angles and channels and 4" O.D. pipe at 45° angles, based on use of 18" cutting wheel and 10 H.P. motor.

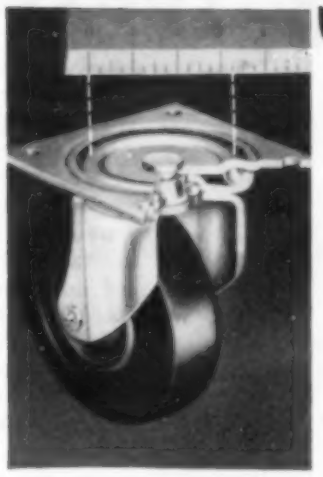
***Write** today for specifications on the new SEVER-ALL or Bulletin DH-301 on the Campbell Abrasive Cutting Method*

ACCO
Campbell Machine Division
AMERICAN CHAIN & CABLE
541 Connecticut Avenue, Bridgeport 2, Connecticut

Wet and Dry Cutters and Nibblers

If you write maker identify as IEN - 9763

Sure cure for the "wobbles"



Bigger swivel bearing area on Bassick Series 99 casters keeps even heavy loads steady, guards against costly accidents.

These high-quality, double-ball bearing casters have a main swivel bearing diameter at least 1⅛" greater than wheel tread width. This makes for wobble-free performance, longer life, easier swiveling, reduced wear.

Write for complete specifications on the cost-cutting Bassick Series 99 casters. THE BASSICK COMPANY, Bridgeport 2, Conn. *In Canada:* Belleville, Ont.

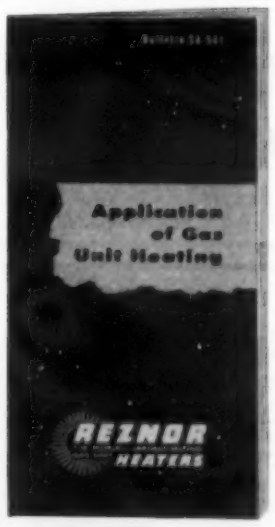
Bassick — A DIVISION OF STEWART-WARNER

MAKING MORE KINDS OF CASTERS . . . MAKING CASTERS DO MORE

75 YEARS OF CASTER LEADERSHIP

If you write maker identify as IEN - 9764

the where when why how of gas unit heater applications



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Temperature Controls
Venting
Computing Gas Line Requirements

compiled for you by the manufacturer of the world's largest-selling gas unit heater

Send for your free copy today

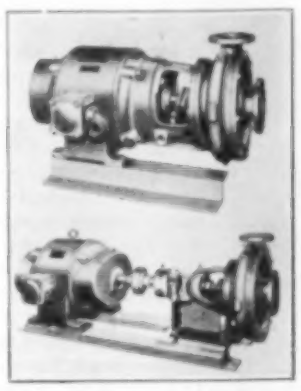
REZNOR MANUFACTURING COMPANY
10 UNION ST., MERCER, PA.

REZNOR
THE WORLD'S LARGEST-SELLING GAS UNIT HEATERS

If you write maker identify as IEN - 9766

Pump - Single stage centrifugal to handle corrosive and erosive fluids

Source: AMPCO METAL INC.
1745 S. 38th St., Dept. IEN, Milwaukee 46, Wis.



Built for many uses

The **company** announces development of a new line of single stage centrifugal pumps in sizes ranging from fractional flow to 600 gpm. on operation at 1,750 rpm. Stock parts can be selected and assembled to meet given service requirements. Thus the pump can be specified in any of the company's type of Ampco alloys or nickel chromium alloys.

The impeller can be semi-open or closed design. The shaft can be a single or two-piece assembly, the latter for quick replacement of the rotating parts without disturbing the assembly. The shaft can be supported on single row or double row ball bearings for oil or grease lubrication. Packing or a mechanical seal can be specified for the shaft.

In addition to initial specification, the pump can be altered in the field to meet changing service requirements. Ability to stand up against erosion and corrosion, combined with correct hydraulic design, provides for handling of liquids normally considered difficult to handle, including those having abrasive solids in suspension. The company is prepared to recommend assemblies to meet specified service conditions in a range of pump sizes from 1½ by 1½ in. to 4 by 3 inches.

If you write maker identify as IEN - 9767

Testing - Colorimeter reads components in an opaque color

Source: FISHER SCIENTIFIC CO.
717 Forbes St., Dept. IEN, Pittsburgh 19, Pa.

Patented

Light from a sample is projected on the left hand half of a white magnesium carbonate screen in this new colorimeter. Light from a series of standard color plaques is mixed and thrown on the right hand half of the screen. The amount of each reference color is varied with a shutter until both sides of the screen are identical. At this point, the per cent of each reference color can be read on numbered drums to provide a numerical formula for the color. The same reference plaques, projected at the same shutter settings, will reproduce the original color on the screen at any later time for exactly matched reproduction.

Eight reference colors are supplied with the instrument. They are porcelain enamel fired on steel plaques. The color comparison stations are illuminated by a single 400-watt tungsten lamp. Baffles prevent the blended reference colors from "spilling over" into the sample color. The instrument operates on 110-volt 60-cycle ac. It lists at about $1,100. Davis-Bruning Colorimeter is the designation.

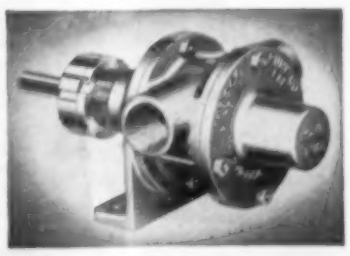
All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9768

A PAID NEWS ADVERTISEMENT BY JABSCO PUMP COMPANY

JABSCO STAINLESS STEEL PUMPS SOLVE CORROSIVE PUMPING PROBLEMS

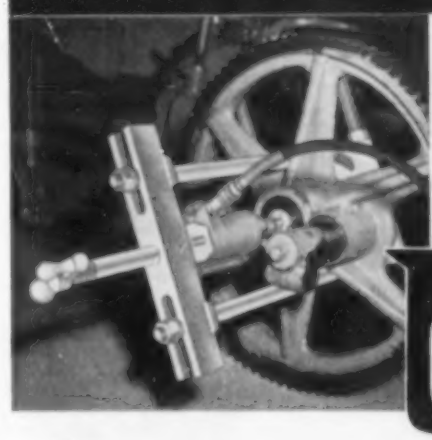
Designed and Engineered for Chemical Applications



Jabsco's complete line of self-priming, corrosion-resistant pumps answer a multitude of pumping needs. Models 2810 (1" pipe size), 2870 (½"), and 2690 (⅜") have all metallic parts of Type 316 stainless steel. Shafts are supported by oversize, replaceable carbon bearings, stuffing box type shaft seal with chemical resistant packing. Pumps function perfectly even with dry suction lifts approaching 15', no foot valve is required. When primed, they suck as high as 26'. Jabsco pumps have no metal-to-metal contact, no gears to wear or become noisy. The exclusive "camflexed" Neoprene Impeller is the only moving part. This tough, long-lived, wear resistant impeller is self-lubricated by the liquid pumped. Jabscos are economical, low in first cost, and trouble and maintenance free, even under continuous operation. May be mounted at any angle to pump thin or viscous liquids, and can be operated efficiently at low or high speeds. At 10' head and 1750 RPM, Model 2810 delivers up to 27 GPM, Model 2870 up to 10 GPM, Model 2690 up to 4 GPM. Other stainless steel models also available with ball bearings and mechanical seals. For complete information on how Jabsco can solve your pumping problems, write **Jabsco Pump Company**, 2031 North Lincoln Street, Burbank, California.

If you write maker identify as IEN - 9769

PUSH . . . PULL 75% FASTER 90% EASIER



WITH THE CENTER HOLE OTC

50 TON HYDRAULIC PULLER

Removes or installs bearings, gears, pinions, shafts, studs, wheels, pulleys, etc.—75% faster and 90% easier. This new OTC 50 ton ram is completely portable (weighs only 45 lbs.)—has remote control pump—interchangeable ram heads—and can be used as a production holding fixture. Also available in 17½ and 30 ton sizes. *Booklet describes complete line and uses of OTC equipment.*

WRITE FOR FREE BOOKLET

OWATONNA TOOL COMPANY
371 CEDAR STREET • OWATONNA, MINN.

If you write maker identify as IEN - 9770

BARBER COLMAN

Wheelco Flame-otrol

Combustion safeguard engineered to *your* job!

Offers *all types* of conventional combustion safeguard systems for faster, *surer* operation under *your job conditions.* Gives you *plus protection* for gas- and oil-fired boilers, furnaces, and kilns . . . plus greater flexibility in selection and use of burners, pilots, and fuels. "Plug-in" program units offer wide variety of purging or ignition cycles. Your Wheelco engineer will recommend a complete system, engineered to your job. Write for Bulletin F2-3.

WHEELCO INSTRUMENTS DIVISION
Barber-Colman Company, Dept. I, 1516 Rock St., Rockford, Illinois
Barber-Colman of Canada, Ltd., Toronto, Ontario, Canada

If you write maker identify as IEN - 9771

Even when you specify such phenomenally long life gear sets as Cone-Drive double enveloping gearing, it helps to know that if you ever need replacements you can get them —*from stock!*

Make sure of that by specifying *STANDARD* Cone-Drive gear sets and reducers.

They will also give you these "plus" advantages:

- **Smaller center distances**
- **Up to 2/3 less weight**
- **More teeth in contact**
- **Lower overall cost**

STANDARD Cone-Drive gear sets come in ratios from 5/1 to 70/1; will handle loads from fractional to over 800 hp. Write for specifications.

CONE-DRIVE GEARS
Division, Michigan Tool Company
DOUBLE ENVELOPING GEAR SETS & SPEED REDUCERS
7171 E. McNichols Road • Detroit 12, Michigan

If you write maker identify as IEN - 9772

HELP ON WAY

. . . because your Watchman was ALERT to sound the alarm!

The Detex GUARDSMAN Watchclock keeps your Watchman alert . . . by giving you unbroken mechanical supervision of his activities night and day—week-ends and holidays. Write for free folder.

DETEX WATCHMENS CLOCKS

PATROL
ALERT
ECO
NEWMAN
GUARDSMAN

DETEX WATCHCLOCK CORPORATION
Dept. E-9
76 VARICK STREET, NEW YORK 13, N. Y.
Sales and Service in All Principal Cities

If you write maker identify as IEN - 9773

Model 218

Defense orders are coming to the clean plants because they can handle production efficiently. Be sure your plant operation is not handicapped by litter, dirt or other debris.

Send today for important Doyle Vac-It information. There's no obligation.

Doyle VACUUM CLEANER CO.

2235 Stevens St., S. W. Grand Rapids 7, Mich.

If you write maker identify as IEN - 9774

These aids put out fires in a hurry

Rockwood's FOAM Eductor *automatically* proportions 3 parts of firefighting Rockwood FOAM into 97 parts of water. Can also be used wherever one liquid is being fed into another on a fixed percentage basis. "Tapped" into the line containing the basic liquid, it automatically introduces the other liquid into the line at a pre-determined rate.

Rockwood's versatile Type SG-60 Nozzle provides 5 types of Rockwood discharge—FogFOAM, straight solid FOAM, high velocity WaterFOG, low velocity WaterFOG or straight water stream.

For complete details, send for Rockwood's free, illustrated catalog, "Fire Fighting Products." Rockwood Double Strength FOAM available in 5-gallon cans or 50-gallon drums. Rockwood WET available in 5-gallon cans or 50 gallon drums. Distributors in all principal cities.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

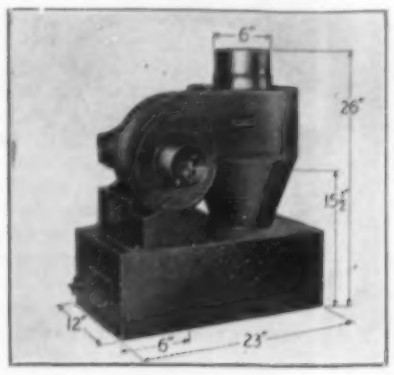
PORTABLE FIRE PROTECTION DIVISION

309 HARLOW STREET, WORCESTER 5, MASSACHUSETTS

If you write maker identify as IEN - 9775

Dust Collecting - Blower and separator for exhaust outdoors

Source: AGET-DETROIT COMPANY
401 Main St., Dept. IEN, Ann Arbor, Mich.



Compact assembly

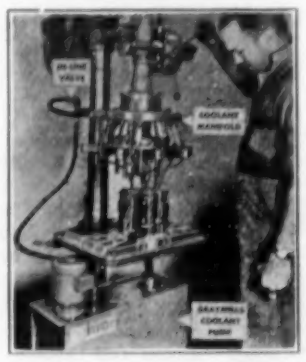
Dust laden air is drawn from a machine into the motor driven blower, mounted on the base of this new Model 5N20 Dustkop unit, for delivery into a cyclone separator. The dust drops to the compartment enclosed in the base. The clean air or toxic gases, drawn in by the blower, are exhausted to an outdoor connection. The unit is available for stationary or portable installation and can be supplied with quick acting clamps to connect to the dust source and to the exhaust outlet at any of several locations.

Rating is 558 cfm. on a 4-in. inlet. The motor is a ½-hp. continuous duty unit. Exhaust connection is 6 in. in diameter.

If you write maker identify as IEN - 9776

Lubricating - Coolant manifold for application on multiple drill head

Source: GRAYMILLS CORPORATION
3705 N. Lincoln Ave., Dept. IEN, Chicago 13, Ill.



Details on request

Coolant is directed through individual valve equipped tubes from this new aluminum manifold. It has been developed to apply on a multiple drill head. The unit mounts on most standard 4 or 8 drill assemblies. Split ring design makes it unnecessary to remove the head for installation. Eight removable and adjustable nozzles are supplied. The manifold is designed to take a maximum of sixteen.

A line valve, leading from the hose connection in the company's coolant circulating equipment, turns the flow off when the drill head is moved up and turns it on as the head comes to cutting position.

If you write maker identify as IEN - 9777

Barry Corporation, 838 Pleasant St., Dept. IEN, Watertown 72, Mass., has assembled information on application of its Barrymounts, vibration isolating units, and has equipped each of its representatives and industrial distributors with a copy. You can benefit by this assembled information if you apply to your nearest representative or direct to Barry Corporation for the name of the nearest individual. The units permit installation and leveling of heavy equipment without bolts or shims. The information covers punch presses, grinders, lathes, milling machines.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9778

A PAID NEWS ADVERTISEMENT BY CLIFFORD MANUFACTURING CO.

BELLOWS TYPE PACKLESS VALVES

All-metallic construction eliminates sliding or restrictive packings, insures a positive, leak tight seal and minimizes wear and deterioration in service.

The hand operated valve employs ball joint construction in the handle. Torque is not transmitted to the valve stem and seating is by straight vertical thrust, minimizing wear. Leak tight bellows construction makes these valves especially suitable for high vacuum systems, laboratory equipment, exhaust systems for hermetic sealing and similar service. The pneumatic-hydraulic model is especially suited for multiple manifold set-ups and remote operation. Standard models are conservatively rated for pressures up to 150 psi and with minor modifications for much higher pressures.

These valves are recommended for service from -65F to 250F in the standard models, with much greater extremes possible with small modifications on special order. Other applications include handling volatile liquids, gasses and corrosive fluids. In this service the metallic sealing of the valve stem reduces hazards of fire, explosion and corrosive attack. Bellows of corrosion resistant metals such as stainless steel and monel can be furnished.

The pneumatic-hydraulic model operates on line pressures of 10 to 150 psi. The valve seat is spring loaded to insure positive opening when actuating pressure is released. All inlet and outlet fittings are ⅛" pipe tap.

Ask for Data Sheet 870-1. Clifford Manufacturing Company 146 Grove Street, Waltham 54, Mass. *Division of Standard Thomson Corporation.* Sales Offices: New York, Detroit, Chicago, Los Angeles, Waltham, Mass.

7. 4. 26

If you write maker identify as IEN - 9779

HANDLING BULK MATERIALS?

"TAKE IT UP A FLO-TUBE"®

CANTON STOKERS

The spiral conveyor of steady, dependable service. Sturdy cast iron trough bolts together in 3 ft. sections, capped with steel plates for easy removal if ever necessary. Built to take the abuse of coal, yet with tolerances just right to handle materials from grain size to lump.

To fill 3 or more hoppers use gate-valves in Flo-Tube horizontally. Below, filling 2 hoppers with "Y" chute.

Hopper level maintained by 'off-on' automatic switches.

Exposed end for pick-up

CANTON STOKER CORP.

SPECIALISTS IN AUTOMATIC COAL FIRING, HANDLING AND CONTROL EQUIPMENT

800 ANDREW PLACE S. W. • CANTON, OHIO

If you write maker identify as IEN - 9780

CUT YOUR COSTS

INVESTIGATE THE BIG SAVINGS IN FILE SHARPENING

The largest and most successful corporations in the world have their files re-sharpened—so—

Why don't you?

We have sharpened files for America's largest industries for over 33 years . . . and savings today are greater than ever before!!

A true sharpening process . . . basically the same as used by new file manufacturers. Absolutely no acid used.

Fill in reader service slip for prompt information and details on our

FREE TRIAL OFFFER

REGRINDING	RESHARPENING
• ROTARY FFILES	• AMERICAN PATTERN
• HIGH SPEED	• SWISS PATTERN
• CARBIDE	• VIXEN & BODY FILES
	• MACHINE FILE BANDS

SERVICE FILE SHARPENING CO.

4461 W. JEFFERSON DETROIT 9, MICHIGAN

BRANCH PLANT

2424 MERCED ST. SAN LEANDRO, CALIF.

If you write maker identify as IEN - 9781

MECHANICAL **RUBBER GOODS** Plastisol Products

INJECTION MOLDING
Bumpers • "U" Rings
Gaskets • Washers
Insulators • "V" Rings
Pump Impellers
Hydraulic Cups
Grommets • Bushings
Hydraulic Seals
Diaphragms
Mountings
Hydraulic Packing

RUBBER Bonded To Metal—Natural or synthetic rubber bonded to metal by special method. Control vibration, shock, noise. Can supply inserts or bond to parts furnished by customer.

CUSTOM MOLDED RUBBER TO YOUR SPECIFICATIONS . . . STOCK MOLDS AVAILABLE FOR MANY SHAPES

Send us your "specs" for prompt quotation. Highest quality work at the right price.

FREE! Miniature synthetic rubber two-ounce capacity controlled flow oiler with your inquiry.

ADVANCE RUBBER CO.

1704 Washington Avenue North • Minneapolis 11, Minnesota

Phone: ALdrich 4717

If you write maker identify as IEN-9782

Brand your equipment with pf decals

Tapered TIMKEN Roller BEARING EQUIPPED

- low cost
- good looking
- permanent

Your nameplate identifies your equipment, keeps your trademark before prospective buyers. PF decals are designed with your product in mind. They go on quickly and last indefinitely. What's more, if you require operating instructions or wiring diagrams, PF decals put across your story at comparatively little cost. It's the brightest way of branding your equipment or setting up instructions that stay.

Learn how PF decals can do a job for you. Art service, consultation, and estimates without obligation. Send today for free booklets, "Decal-Ways to Sales," "PF Window Valances and Window Signs" and "How Leading Advertisers Use Decals."

PALM, FECHTELER & CO.

85 MAPLE STREET • Dept. IEN-9 • WEEHAWKEN, N. J.

If you write maker identify as IEN-9783

MIX FLUIDS

in any tank or container

Get rapid, thorough mixing in any open vessel—with a LIGHTNIN Portable Mixer.

It clamps in place. You can adjust it immediately to the correct angle. It mixes completely and uniformly, by causing rapid top-to-bottom turnover, plus rotation of tank contents. No baffles necessary.

Do these mixing jobs—fast

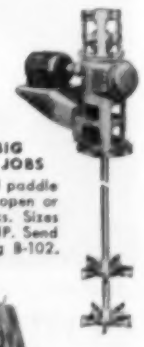
Get just the kind of action you want with a LIGHTNIN. Vigorous mixing, or gentle blending. Beat, stir, circulate fluids. Disperse gases in liquids. Wash, dissolve, suspend solids . . . quickly, uniformly.

Fully guaranteed to do an efficient mixing job for you, or your money back. Thousands in use everywhere. Many in service over 20 years.

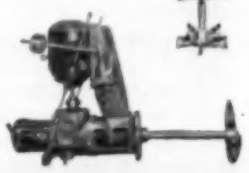
Thirty portable models to choose from—⅛ to 3 HP. Electric and air motor types. Direct or gear drive.

Send today for illustrated Catalog B-108 and prices.

RAPID, UNIFORM MIXING
Mounted at off-center angle, LIGHTNIN turns tank contents over and over, while rotating them around and around.



FOR BIG MIXING JOBS
Turbine and paddle mixers for open or closed tanks. Sizes 1 to 500 HP. Send for Catalog B-102.



FOR VERY LARGE TANKS
Side entering propeller mixers. Sizes 1 to 25 HP. Send for Catalog B-103.

Lightnin® Mixers

MIXING EQUIPMENT Co., Inc.

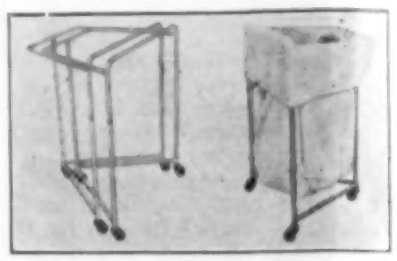
124-j Mt. Read Blvd., Rochester 11, N. Y.

In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 10, Ont.

If you write maker identify as IEN-9785

Handling - Tubular frame hamper, caster mounted and designed to nest

Source: COLSON CORPORATION
Dept. IEN, Elyria, Ohio



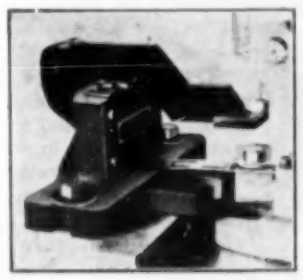
Space saver design

New hamper employs a standard round bag that can be removed without lifting after loosening a draw string that secures the bag to the frame. Then the frame can be rolled away since there are no cross members or lower braces to interfere. The hamper frame measures 35 in. in overall height and weighs 6½ pounds. It is available in stainless steel or in plain steel finished with aluminum bronze. List price is $15.30 for the latter, in groups of 6, and $46.10 each for the former, also in groups of six.

If you write maker identify as IEN-9786

Press Tools - Scrap cutter mounts on press bed for ram operation

Source: JACO DEVICES INC.
91 High St., Dept. IEN, Hingham, Mass.



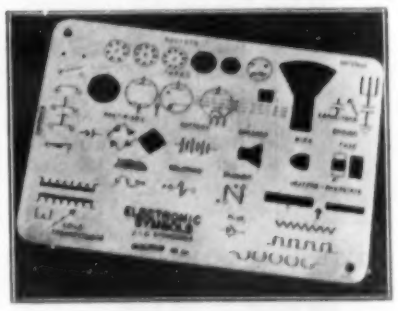
Removable blade

Scrap Chopper is a new cutter to clamp on a press bed so strip scrap issuing from the press can be cut into short lengths suitable for handling. Strip width capacity is 3 inches. Thickness is to 0.062 inch. The unit is operated by downward movement of the press ram in connection with an adjustable plunger secured to the ram.

If you write maker identify as IEN-9787

Drafting - Transparent template to trace JIC electronic symbols

Source: RAPIDESIGN INCORPORATED
Box 592, Dept. IEN, Glendale, Calif.



List price is $3

Number 311 designates a new plastic template carrying standard electronic JIC symbols. The template is made of 0.03 plastic with a matte finish. The cutouts are milled to present smooth edges. Overall dimensions are 7 by 5 inches.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-9788

A PAID NEWS ADVERTISEMENT BY THE MINNESOTA RUBBER AND GASKET CO.

COSTLY SEALING LEAKS REDUCED BY NEW TYPE O-RING SEAL

Made by injection molding process

O-ring seals of extremely high density and with tolerances of ±.001 inch are now being manufactured by the Minnesota Rubber and Gasket Company, Minneapolis, Minnesota. Made by Minnesota Rubber's exclusive rubber injection molding process, low cost Minnesota Rubber O-rings have no "flash" or weakening trimming blemishes. Rubber fatigue is kept at a minimum.

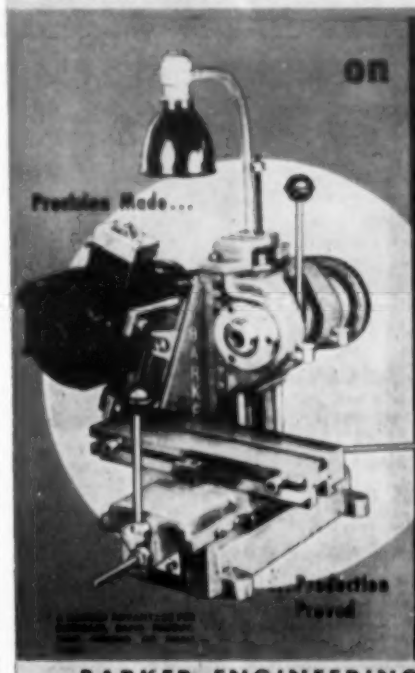
Worldwide acceptance of the new type O-rings now makes Minnesota Rubber the world's largest manufacturer of rubber O-rings. Injection molded O-rings function perfectly in air, gas and hydraulic systems, are used in the finest electrical, chemical and mechanical applications.

For complete information, write the Minnesota Rubber and Gasket Co., Dept. 330, 3630 Wooddale Avenue, Minneapolis 16, Minnesota.

If you write maker identify as IEN-9789

All these operations...

MILLING, PROFILING, DRILLING, KEY SEATING, END MILLING, STRADDLE MILLING, SLOTTING, TURNING, FACING, COUNTERBORING & RECESSING



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Bench Type
MILLS
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3-WAY
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IN USE BY MANUFACTURERS OF:
- Surgical Instruments
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- Electronic Equipment
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- Tractors
- Electric Hand Tools
- Precision Tools

BARKER ENGINEERING COMPANY
[illegible] ROAD • CLEVELAND 21, OHIO

WRITE FOR NEW COMPLETE LITERATURE AND SPECIAL ACCESSORY INFORMATION TODAY!

If you write maker identify as IEN-9790

If there's a better way to bore — Davis does it!

NEW Davis spherical boring tools cut machining time, maintain closer tolerance and improve finish!

These Davis spherical boring tools, mounted on a continuous feed facing head, are currently being used in machining 9" to 48" bearing seats of pedestals and caps. As reported by a large electrical equipment manufacturer, the new tool has considerably reduced tool breakage. What's more, it maintains closer tolerances and produces a better finish than was previously possible. If you've a spherical boring problem, chances are one of the three types of Davis special tools shown below is the answer

3 exceptionally flexible ranges — 8 to 48" diameters

FOR LARGER WORK — 24 to 48"
Simultaneous tool rotation and spindle advance produce spherical motion of block-type cutter.

FOR MEDIUM BORES — 8 to 12"
Relative motion of outer to inner bar moves cutter spherically.

SMALLER DIAMETERS — 8 to 13"
Adjustable stop collar positions cutter for spherical boring.

REMEMBER . . . If Davis can't bore it—it can't be done! Send for Catalog 304 illustrating complete line of Davis boring and cutting tools.

DAVIS BORING TOOL DIVISION
OF GIDDINGS & LEWIS MACHINE TOOL COMPANY
FOND DU LAC, WISCONSIN

If you write maker identify as IEN-9791

first really new development in safety spectacles in years!

WILLSON *"Contour-Spec"**

Style WCS47
Covered by Design Patent 168,988

New... hinged bridge gives snug, comfortable fit...self-adjusting to any facial contour!

1 **New hinged bridge** combines the flexibility of cup-type goggles with the lightweight, compact protection of safety spectacles.

2 **One all-purpose size** permits universal fit. Bridge hinge gives automatic adjustment to any bridge width from 18-26 mm.; one eye size—47 mm.—fits everybody. *No need to stock a variety of bridge and eye sizes.*

3 **Plastic nose-and-cheek pads** provide *full closure* around eye cavity.

4 **Contour-shaped** adjustable plastic-and-cable temples hold spectacles firmly in place.

5 **Matching sideshields** are perforated plastic, providing protection at sides—*fold back* for pocket compactness.

6 **Butyrate frame** — *toughest plastic used for spectacles.* Standard frame is flesh colored, fitted with 6-curve Willson Super-Tough* glass lenses. Available also with green frame and sideshields, fitted with Willsonite* Super-Tough green glass lenses.

Hinged to fit any face snugly!
See how the unique hinged bridge allows the Contour-Spec to open up to fit broad faces and close up for narrow faces. It's this feature that allows Contour-Specs to contact the entire eye cavity and makes them fit so comfortably, yet securely.

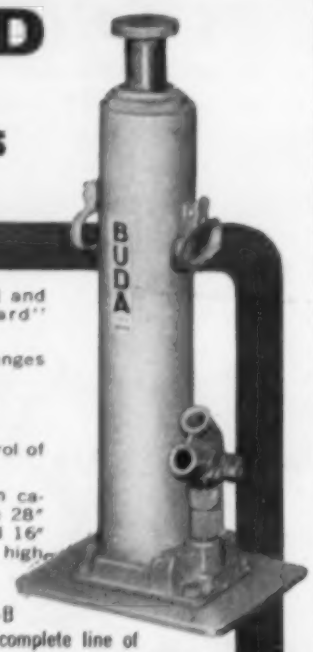
Order a supply of Contour-Specs from your Willson distributor. Let your workers try their amazingly greater comfort, and see how they're preferred over ordinary safety spectacles!

More Than 300 Safety Products Carry This Famous Trademark
WILLSON *Established 1870* *Trademark

WILLSON PRODUCTS, INC., 217 Washington Street, READING, PENNA.

If you write maker identify as IEN - 9792

2-SPEED
HIGH-LIFT
HYDRAULIC JACKS



- Use "fast" speed for light and medium loads; "standard" speed for capacity loads
- One simple adjustment changes lifting speed
- One-man operated—easily portable
- Operator has positive control of lowering under load
- Available in 25 and 50-ton capacities. 25-ton models are 28" and 22" high with 22" and 16" lifts; 50-ton model is 26" high with 20" lift.

Write for new Bulletin 1515-B and full details on BUDA's complete line of mechanical and hydraulic jacks. "A jack for every job."

BUDA THE BUDA COMPANY Harvey, Illinois

Division of Allis-Chalmers Manufacturing Company

If you write maker identify as IEN - 9793

B.F.Goodrich

FREE TIRE AND WHEEL TW ANALYSIS can solve your tire problems, reduce costs 20-50%

The B. F. Goodrich Tire and Wheel Analysis Plan has reduced industrial tire costs 20 to 50% for hundreds of users. This free service can help cut *your* tire and tire maintenance costs. Contact your local BFG retailer or mail the coupon below. Without cost or obligation a trained B. F. Goodrich man will study your materials handling operations. He will tell you what type and size tire, what tread design and compound will serve you best. The advice you receive will be unbiased, for B. F. Goodrich makes a *complete* line of industrial tires. A special TW Analysis is available for manufacturers of industrial hauling equipment.

Here is an example of premature tire failure. BFG's TW Analysis shows you the reasons for such failures, prevents reoccurrences.

Free recommendations. The TW analysis man is an expert. His study and recommendations can help you reduce tire and tire maintenance expense.

The B. F. Goodrich Company
Tire & Equipment Division
Department TW-414, Akron 18, Ohio

Please send me:
- ☐ Additional information on your Tire and Wheel Analysis Plan
- ☐ Free copy of "Industrial Tire Guidebook"
- ☐ Free copy of "How to Get Extra Service out of Solid Industrial Tires"

Name_____
Company_____
Street_____
City_____ Zone____ State:____

Specify B. F. Goodrich tires when ordering new equipment

B.F.Goodrich

If you write maker identify as IEN - 9795

Marking - Traffic line machine sprays paint from 10 gallon tank

Source: M-B CORPORATION
Dept. IEN, New Holstein, Wis.

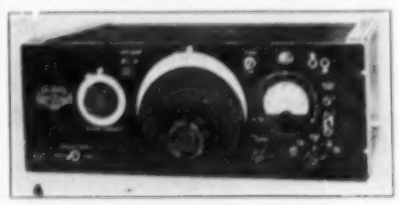
Conserves paint

Traffic lines, measuring 2½ to 5 in. in width, can be spray painted evenly and quickly with this new hand propelled Model 1-10 machine. It employs a 1-hp. air cooled engine to drive a compressor. The air delivers the paint through an adjustable spray head mounted at the front of the assembly. Delivery is through a Jet Cup that concentrates the spray stream for penetration and sharply defined line edges. In addition to marking traffic lines, the machine can be employed as a portable utility paint unit.

If you write maker identify as IEN - 9796

Testing - Generator to check audio-frequency equipment

Source: GENERAL RADIO CO.
275 Mass. Ave., Dept. IEN, Cambridge 39, Mass.



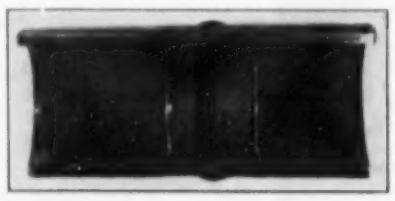
About $555

Type 1304-B is a new model in the company's line of audio generators. It employs an improved amplifier and now includes an output attenuator and voltmeter. Output frequency extends from 20 to 40,000 cycles in two ranges. The output amplifier employs a new single-end push-pull circuit and supplies 1 watt into a 600-ohm load.

Output level is indicated by a meter and an attenuator setting in both volts and dbm. Full scale open circuit outputs of 50 and 500 millivolts, 5 and 50 volts, are provided with a basic voltmeter accuracy to 5 per cent of the reading.

If you write maker identify as IEN - 9797

Lengths of pipe, that have been porcelain enameled inside and out, can be joined by oxyacetylene welding in a procedure worked out by Barrows Porcelain Enamel Co., Dept. IEN, Cincinnati 12, Ohio. The pipe is cut to length in the field with any tools that will make the ends about square. A porcelain enameled insert is fitted inside each end. The ends are brought together and are heated with the gas flame. The heat fuses the glass coating of the inserts to the glass lining in the pipe.



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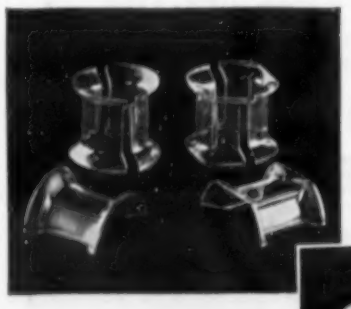
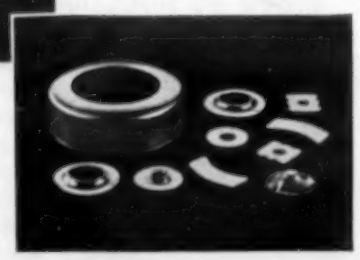
If you write maker identify as IEN - 9798



HOW TO SAVE MOLD COSTS...



on Insulators, Washers and Small Parts Plastic-Fabricated by

SILLCOCKS-MILLER

Sillcocks-Miller engineers now enable you to get small plastic parts, such as insulators, washers, etc. through a special fabricating process that saves the cost of molds.

The development of this process has opened the possibility of fabricating thin wall pieces such as insulators, etc., and offers economy without sacrifice of quality or service life.

You are invited to submit your specifications on small parts of this type for recommendation.

The SILLCOCKS-MILLER Company
Pioneers in Plastic Fabrication since 1910

27 West Parker Avenue · Maplewood, N. J.

If you write maker identify as IEN - 9799

RELAYS

IMMEDIATE DELIVERY FROM STOCK

Special attention is given to orders of one or more relays for engineering and lab samples or for experimental purposes. 24 hour delivery will permit you to draw from our stock rather than schedule your orders for months in advance.

Relay Sales maintains the world's largest stock of relays for practically every application. Nothing but first line products of leading manufacturers are carried. Each relay is brand new, individually inspected and unconditionally guaranteed. Prices less than market.

Hundreds of Types in Stock

- STANDARD TELEPHONE RELAYS
- SHORT TELEPHONE RELAYS
- MIDGET RELAYS
- TIMERS
- AIRCRAFT CONTACTORS
- ROTARY RELAYS
- WESTERN ELECTRIC TYPE "E" RELAYS
- KEYING RELAYS
- HERMETICALLY SEALED RELAYS
- VOLTAGE REGULATORS AND CUTOUTS
- DIFFERENTIAL AND POLARIZED RELAYS
- SPECIAL RELAYS
- BK-SERIES
- ANTENNA AND CERAMIC RELAYS
- MOTOR AND CONTROL RELAYS
- RELAY ASSEMBLIES
- LATCHING AND INTERLOCKING RELAYS
- MECHANICAL ACTION RELAYS
- RATCHET AND STEPPING RELAYS

Relay Sales

Phone: AUstin 7-0709
Write for New Relay Catalog C-5
4715 W. MADISON STREET
CHICAGO 44, ILLINOIS

If you write maker identify as IEN - 9800

MULTI-PURPOSE INTERNATIONAL HI-SPEED COPE SAW DRILL BIT

DRILL, SAW, REAM . . . metal, pipe, wood, plastic, Transite, etc. Use with any electric drill, slow drill press, lathe or milling machine. Drills own starting hole—upper part of bit is used to cut, saw or ream circles, ovals, squares, or scrolls. Easy to operate. Ideal for carpenters, mechanics, electricians, plumbers, hobbyists, many others. Abrasive resistant, high speed steel. Flutes ground from solid. Will withstand severe continuous use without breaking. Resharpened at no charge. Takes place of up to $50.00 in tools. ¼" diameter, 2" cutting sections, total length 3½". Available in three types — All Purpose, Wood, Heavy Metal. Specify type needed. Set of 3, $11.50. Details on request. Shipped same day. Money-back guarantee. Dealer inquiries invited.

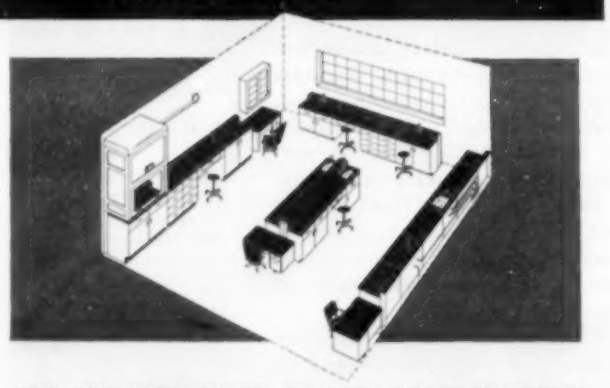
ORDER NOW! SEND CASH, CHECK OR MONEY ORDER.

Manufactured and Distributed by

INTERNATIONAL TWIST DRILL CORP.
618 Wyandotte Rm. No. 951 Kansas City 5, Mo.

If you write maker identify as IEN - 9801

FISHER *Unitized* FURNITURE



FITS ANY SIZE, SHAPE, OR TYPE OF LABORATORY

Fisher unitized furniture is made with heavy gauge steel in a wide variety of standard stock units and accessories. Once installed, they can be just as easily dismantled and re-assembled to meet the changing needs of a progressive laboratory.

Immediate Delivery from Stock

Write for FREE Furniture Catalog FS-227-Q which shows suggested layouts and description of all furniture units.

FISHER SCIENTIFIC
717 FORBES ST. PITTSBURGH 19, PA.

If you write maker identify as IEN - 9802

THE *Sutton* MOTOR DRIVEN PRESSURE BLOWER

THREE SIZES
¼, ½, 1 H.P.

USE FOR
- EXHAUSTING
- DUST
- SMOKE
- FUMES
- VAPOR
- FORGE BLASTING

CONVEYING COTTON, WOOL, SHAVINGS
COOLING AND DRYING

MADE OF LIGHTWEIGHT CAST ALUMINUM ALLOY, CENTRIFUGAL TYPE. Direction of discharge may be changed to any of eight 4 degree positions. Straight wall construction reduces windage and increases efficiency. Standard 3450 r.p.m. direct-connected 60-cycle ball bearing motor, open or totally enclosed types. Capacities, 100 to 800 cu. ft. per min. at static pressures from ½" to 6".

WRITE FOR LITERATURE AND PRICES

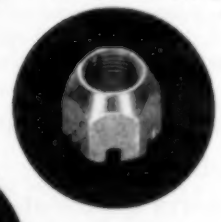
Sutton *Manufacturing Corp.*
126 W. WILSON AVENUE NORFOLK, VIRGINIA

If you write maker identify as IEN - 9803

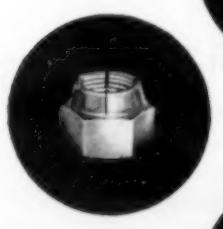
*12 POINTER

is made in comparable dimensions, in all popular sizes of standard nuts, as well as "Huglock" and "Marsden" locknuts.

SPECIAL

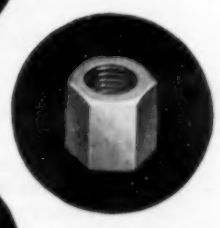


HEXAGON NUTS TO YOUR SPECIFICATIONS

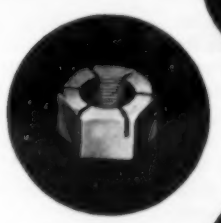


"HUGLOCK"—SELF-LOCKING ONE-PIECE ALL-METAL

"SEEZ-PRUF"



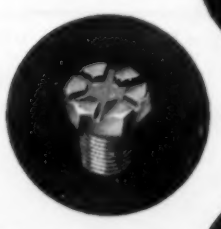
NON-SEEZING STEEL NUTS FOR HIGH TEMPERATURES



"MARSDEN"—THE FREE RUNNING LOCKNUT

FINISHED & HEAVY

HEXAGON NUTS



"PLACE" BOLTS—ONE-PIECE SELF-LOCKING WITH DIAPHRAGM HEAD

OIL & WATER SEALERS

OIL AND WATER SEALING COMPOUNDS

Here are the types of fasteners that are described in our new 160 page catalog that is on the press. The *24 page, 12 Pointer section which contains complete information, specifications and engineering data, is already available for distribution . . . If you also have need for this type of information, on the rest of our product, we have a limited quantity of the current edition of our general catalog that can be supplied without delay. Please indicate, whether you want the complete catalog or the *12 Pointer Brochure only.

NATIONAL MACHINE PRODUCTS COMPANY

*Manufacturer of Standard and Special *12 Pointer and Hexagon Nuts . . . "Huglock" and "Marsden" locknuts.*

44239 Utica Rd., UTICA, Michigan

If you write maker identify as IEN - 9805

Vise - Air collet design to secure work on a machine table

Source: PITT INDUSTRIES
Dept. IEN, Carnegie, Pa.

Bulletin T-101

Airkolet Chuck trade names this new assembly of collet type chuck, pneumatic operating cylinder and head for horizontal or vertical positioning on a machine table. An operating valve mounts beside the head and connects by means of a short length of hose. The non-rotating chuck takes quick change pads for work ranging from ⅜ to 1⅞ in. in diameter or its equivalent.

Standard equipment includes one master collet and one set of soft pads or one solid collet for round or hexagon work. Additional collets or pads for special shaped work are available to order. The air control valve, for hand or foot operation, also is available to order. Overall dimensions are 11 by about 4¾ by 8½ inches. Center line of the work is 3 in. from the base.

If you write maker identify as IEN - 9806

Steel - Iron alloy for machine parts subject to abrasion

Source: TAYLOR-WHARTON IRON & STEEL CO.
Dept. IEN, High Bridge, N. J.

Technical data upon request

Tisco 150-Y is a new iron alloy that can be treated to 700 Brinell. It is suited for use in equipment parts such as propulsion blades for centrifugal cleaning equipment, tube elbows in pneumatic lines handling metal chips, augers and related parts for brick making equipment, asphalt mixing paddles, feed and chute liners, grizzly discs, pump casings and liners, impellers, pulverizer plow, tips and liners, conveyor flights.

If you write maker identify as IEN - 9807

Switch - Foot operated, single pole, 20 amp. on 110 volt ac

Source: LINEMASTER SWITCH CORP.
424 Woodstock Terrace, Dept. IEN, Woodstock, Conn.

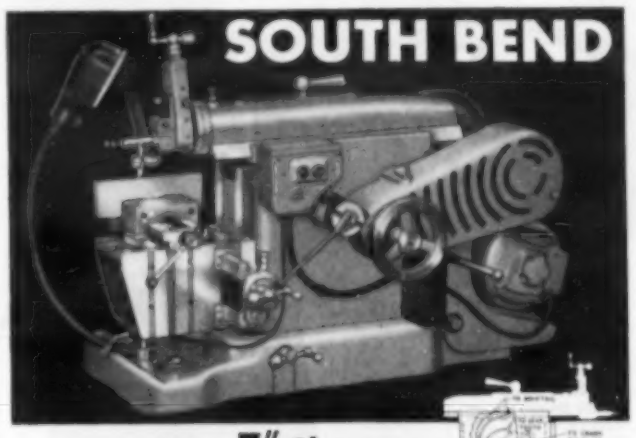
Catalog 631-5

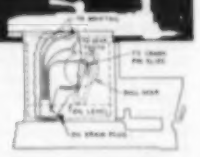
Two part cast iron housing in this new Clipper foot operated switch encloses the mechanisms. The parts can be separated, after removing two screws, for access to the interior. The single pole double throw switch rates 20 amp. on 110-volt ac. Mounting is on a sponge rubber skid pad. Finish is in black wrinkle lacquer.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9808

If you write maker identify as IEN - 9809





ONLY 7" Shaper with pressure lubrication

COMPARE THESE FEATURES:

- Extreme precision for the most exacting tolerances.
- Convenient controls for ease of operation.
- Ample bearing surfaces for rigidity and durability.
- Smooth, quiet operation at all speeds.
- Quick acting belt tension release.
- Sliding support shoe for outer end of table.
- Length of stroke adjustment 0 to 7".
- Reversible power cross-feeds .002" to .012".
- Swivel vise with graduated base.
- Price f.o.b. factory $551 less motor.

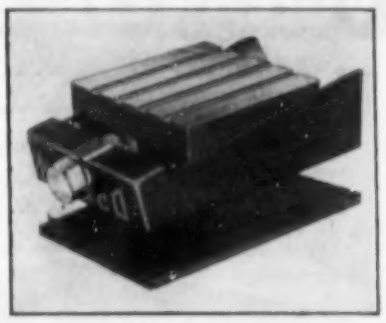
Write for Catalog

SOUTH BEND LATHE
SOUTH BEND 22, INDIANA
Building Better Tools Since 1906

If you write maker identify as IEN - 9810

A PAID NEWS ADVERTISEMENT BY ENTERPRISE MACHINE PARTS CORP.

Improved Machine Leveling Jack is 50% stronger yet lower in height



Engineering improvements have made this Jack 50% stronger yet lower in height. This was accomplished by redesigning the Empco Jack so that the adjusting screw always remains cradled in the assembly. This insures full bearing of either front or back collar at any stage of operation.

Once the machine is set on Empco Jacks, the simple turning of adjusting screw with a hand wrench will lower or raise the machine until your level indicator reads "zero." With this feature, periodic machine leveling can be done in a matter of minutes.

To reduce vibration, Vi-Sorb Mounting Pads are available with each style Empco Jack. These pads substantially reduce vibration, the percentage of reduction usually depends upon the thickness of pad that is used.

Level machine installations with periodical re-leveling is essential to lower costs of machine maintenance. These costs are further reduced by the use of Vi-Sorb Mounting pads under Empco Leveling Jack.

Available in three styles: JC-1 (standard) and JC-2 (heavy duty) pictured here, and the newest style JS particularly designed for use with anchor bolts. Many models in all styles with minimum height ranging from 1⅞" to 4".

For complete specifications and prices write the Enterprise Machine Parts Corporation, 2737 Jerome Ave., Detroit 12, Michigan.

If you write maker identify as IEN - 9811

REVOLVATOR *RED-GIANT* features Safety-Ease

Durability—built in by 50 years of Revolvator Co. experience—is still the fundamental of the Red Giant liftruck line. Maneuverability, plus the safety of their exclusive double stroke mechanism, make the models shown leaders in their fields. There is a Red Giant liftruck available for every use—for every capacity.

Write for the full facts today.

REVOLVATOR CO.
8759 Tonnele Ave. North Bergen, N. J.

If you write maker identify as IEN - 9812

DAY DUST CONTROL
SINCE 1881
A SINGLE UNIT OR A COMPLETE SYSTEM

DAY "AC" FILTER HAS 99.99+% FILTERING EFFICIENCY

The new efficiency achieved with the DAY "AC" Dust Filter provides benefits not possible with conventional filters. Its 99.99+% filtering efficiency applied to your plant will give you better dust control, larger recovery of valuable product, minimized plant hazards and more economy in space, installation and maintenance costs.

72 YEARS' EXPERIENCE IN INDUSTRIAL DUST CONTROL

Since 1881, The DAY Company has specialized in the engineering, manufacture and installation of dust control systems for industry. If you have a dust problem, DAY can provide an effective and economical solution.

WRITE FOR NEW BULLETIN

It will give you detailed facts and figures on the DAY "AC" Dust Filter and other DAY equipment.

The DAY Company
813-3rd Avenue N.E. • Minneapolis 13, Minnesota
IN CANADA: P.O. Box 70T, Ft. William, Ont.
Branch Plants in Buffalo, Ft. Worth and Welland, Ont.

If you write maker identify as IEN - 9813

DESIGNED AND DEVELOPED BY SPECIALISTS FOR PRINTED CIRCUIT SOLDER OPERATIONS

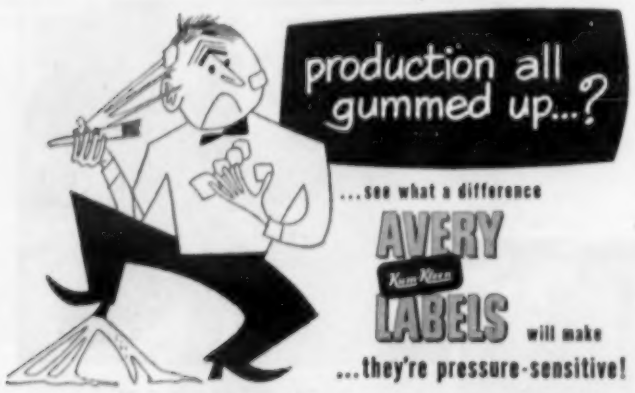
VULCAN "EVEN-DIP" SOLDER POTS

- 16 Crucible Sizes
- High Fidelity thermostat control — adjustable 150-600° F.
- Surface Temperatures do not vary beyond ±2° F. Localized "hot spots" completely eliminated
- Replaceable heavy-duty heating elements

Send For Free, Detailed Specifications

VULCAN ELECTRIC CO., DANVERS 8, MASS.

If you write maker identify as IEN - 9814



■ Self-adhesive Avery Labels are quick, clean and neat... there's no mess, no fuss, no sticky fingers. Combined with patented Avery dispensers, they'll speed and simplify your labeling—and production! They're laid right on your product—*without moistening*. They'll put your trade mark on that hard-to-label surface...put a warning sticker or wiring diagram on your product or any clean, smooth spot. For inspection stickers...color coding...guarantees—they'll really speed production, packaging or any labeling or marking job!

■ Available in sheets or rolls...in any size, shape or color. Write for case histories and FREE SAMPLES—*today!*

AVERY ADHESIVE LABEL CORP., custom div. 103
117 Liberty Street, New York 6 • 608 South Dearborn Street, Chicago 5
1616 S. California Ave., Monrovia, Calif. • Offices in other Principal Cities

☐ Send us case histories & free samples
☐ Tell us about your dispensers
☐ Have the Avery Label man call

Name
Company
Address
City State

If you write maker identify as IEN - 9815

Snow Plow - Engine driven, gathers and throws snow to one side

Source: MAXIM SILENCER CO.
80 Homestead Ave., Dept. IEN, Hartford 1, Conn.

Throws snow to either side

Model 248, rider type, is new addition to the line of Snow Thrower snow plows, previously described IEN-13354-53. The new unit employs a 31-hp. Wisconsin gasoline engine operating at 2,200 rpm. to drive the gathering spirals and the blower with which snow is picked up and thrown. An Allis Chalmers Type G engine driven tractor unit, rating 9½-hp. drawbar pull, drives the machine forward. One of the engines is equipped with a hydraulic pump that supplies pressure to raise the scoop to a height of 10¾ in. from the ground. The machine will climb an 8-in. curb on its 16-in. front wheels.

The scoop measures 48 by 27 inches. The feed screws are 12 in. in diameter. The blower rotor measures 18 inches. Rotor speed is 1,300 rpm. to throw the snow a distance of 50 to 60 feet. The machine can be operated in a 32-in. depth of dry snow. It is provided with four speeds forward and one in reverse. Wheel base measures 58½ inches. Turning radius is 10 feet. Weight is 3,400 pounds.

If you write maker identify as IEN - 9816

Straining - Wire mesh unit to remove solid particles from fluids

Source: WM. W. NUGENT & CO.
414 N. Hermitage Ave., Dept. IEN, Chicago 22, Ill.

Opens to clean

The element in this new Figure 1490 AM strainer is star shaped and is made of either bronze or stainless steel wire mesh from No. 8 No. 150. Fluids, containing dirt, enter the housing to surround the element. The clean fluid issues from inside to an outlet at the top. Dirt particles are stopped by the wire mesh and fall to the bottom of the housing.

Ten sizes rate 6 to 7,050 gpm. based on 100 SSU oil, at a pressure drop of about 5 lb., and a 60-mesh screen. The smallest strainer measures 3¾ by 8 in. overall. The largest unit measures 34 by 53 inches.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9817

A PAID NEWS ADVERTISEMENT BY PREMIER CO.

NEW ALL-PURPOSE FLOOR MACHINE FOR HEAVY-DUTY INDUSTRIAL USE

Premier Company, a famous name in industrial vacuum cleaners, introduces a new line of floor machines with the Premier All-Purpose Floor Machine designed for heavy-duty industrial use. Premier All-Purpose units, thoroughly scrub, wax, polish, shampoo, buff, dry clean, grind and sand all types of floors.

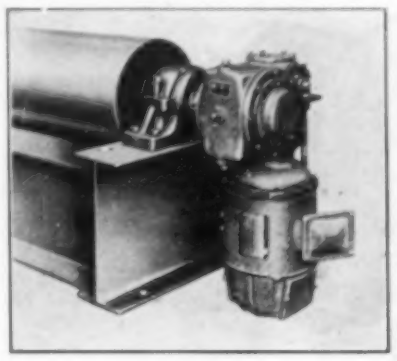
Featuring built-in balance, the new Premier units are easy to operate, will not skip or jump. Low in cost, Premier Machines feature the newest improvements in the market to save money on the first day of use. Are designed to clean floors thoroughly and quickly to give custodians more time for other important duties.

Low unit height of 12" and adjustable handle permit cleaning hard-to-reach areas. G-E heavy-duty motor and newest ball-bearing silent gear train practically eliminate maintenance. Available in three sizes: 13", 15", 18". Necessary attachments included. Complete information given on request without obligation. Write to Premier Company, Dept. 404, 755 Woodlawn Avenue, St. Paul 1, Minn.

If you write maker identify as IEN - 9818

Drive - Geared head motor, 1 to 15 hp., mounts on driven shaft

Source: PHILADELPHIA GEAR WORKS INC.
Erie Ave. & G St., Dept. IEN, Philadelphia 34, Pa.



Catalog F-54

Floating GearMotoR is a new assembly of motor and geared head for use on a roll or conveyor drive in shaft mounted self-contained arrangement. There is no chance for misalignment between the power unit and the driven shaft. A torque arm holds the motor in stationary position. The right angle worm and gear arrangement requires a minimum of space. The gearing is designed for 300 per cent peak loading over normal rating. It is enclosed in a housing made of cast steel or cast iron to specification.

Rating is 1 to 15 hp. Output speed is from 8 to 800 rpm. Mounting can be made in any position around the driven shaft.

If you write maker identify as IEN - 9819

Floors - Aluminum primer for use on concrete floors, also seals

Source: WOODHILL CHEMICAL CO.
1391 E. 33rd St., Dept. IEN, Cleveland 14, Ohio

Technical data upon request

Aluminum is suspended in a volatile liquid vehicle in a new combination floor primer and sealer in the company's Seagate line. The liquid is packaged in quarts and gallons. Coverage is about 250 sq. ft. per gallon. The volatile liquid evaporates over night. It leaves a dry film of aluminum that seals pores in the concrete floor and provides a firm surface on which to paint or add tile. Application can be made on new or old floors. No scouring, curing or etching is required.

If you write maker identify as IEN - 9820

Furniture - Folding table for cafeteria use, seats eight persons

Source: SEATING INCORPORATED
6045 Pillsbury, Dept. IEN, Minneapolis 19, Minn.

No need for chairs

Sico "1900" is a new table with integral benches designed for permanent seating in industrial lunchrooms and cafeterias. It can be folded and stored in an area measuring 8 in. in width.

Construction includes structural steel members, zinc plated and bright finished, fir benches and plastic surfaced hardwood top. The top measures 72 by 30 in. and stands 27 in. above the floor. Bench height is 15 inches. Overall width is 50¾ inches. Weight is about 125 pounds.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9821

Power Thread and Cut
½" to 8" Pipe *on the job*

The 26 lb. PORT-A-PONY Power Drive saves you time and money threading pipe . . . *in place!*

- Also pulls wire through conduit, drives winches, opens and closes valves.
- One man, one hand unit.
- Adaptable to all popular die stocks.
- Powerful ½ HP AC-DC reversible motor.

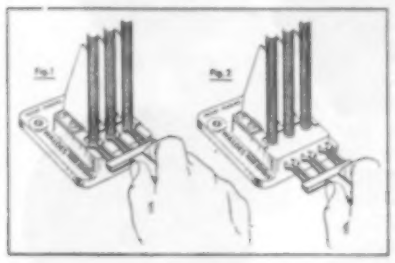
WRITE FOR FULL INFORMATION

THREAD-EZY MFG. Company
333 North Brady Street • Corunna, Michigan

If you write maker identify as IEN - 9822

Fastening - Dispensing fixture for company's Truarc retaining rings

Source: WALDES KOHINOOR INC.
47-16 Austel Place, Dept. IEN, Long Island City 1, N. Y.



Built to order

Illustrated is new triple-stack assembly of the company's retaining ring dispenser, previously described in single unit assembly IEN-7049-54. Three Truarc crescent or E-shaped retaining rings are picked up, in line, at one time and are withdrawn by means of the application tool. The rings are loaded into the dispenser in individual stacks, the tongues of the stack rods locking into place in grooves at the top of spring rails on the dispenser base. The rings slide down the rails to the base in position to be engaged by the tool.

If you write maker identify as IEN - 9823

Cutting - Plier type tool for use on BX armored electric cable

Source: TELKOR INCORPORATED
Dept. IEN, Elyria, Ohio

Protects the wire

New tool cuts both sides of BX metal armor in one movement without touching the enclosed conductors. It has been designed to take the place of a hack saw to cut this type of cable. It can be applied in confined locations. It adjusts to all of the common BX cable sizes. Handles and jaw are dropped forged and machined. The cutting blades are removable for sharpening or replacement. Overall length is 10 inches. Weight is 1¼ pounds.

If you write maker identify as IEN - 9824

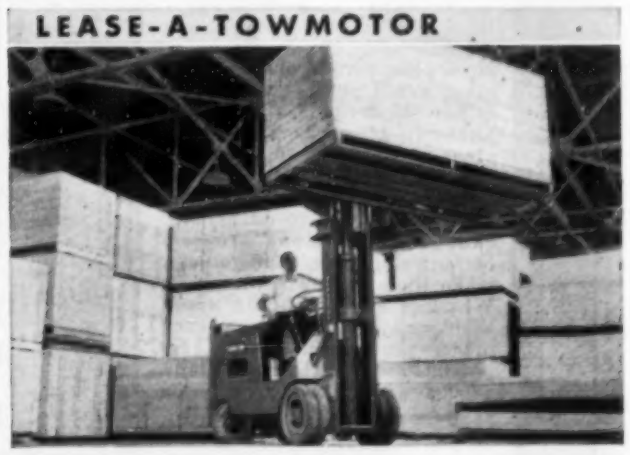
Workers are carried up and down as they stand on steps secured to a 5-ply vertical conveyor belt 14 in. in width. Initial

installation was made in a 300-car parking garage serving four levels to carry parking attendants from floor to floor at the rate of 75 feet per minute. The equipment was manufactured by J. B. Ehrsam & Sons Mfg. Co., 108 No. Factory, Dept. IEN, Enterprise, Kansas.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9825

LEASE-A-TOWMOTOR



GET LOWER HANDLING COST . . . WITHOUT CAPITAL INVESTMENT

"Lease-A-Towmotor" Plan requires no capital investment and only a small monthly rental payment. Advantages include—

(a) *Low monthly rental during lease contract period. No down payment.*

(b) *Your business will enjoy the competitive advantages of lower costs through greater handling efficiency.*

Choice of a 3 or 5-year lease. Monthly payments are graduated downward over 3-year period and are proportionately lower over 5-year period.

TOWMOTOR Time Payment Plan. You can also buy your Towmotor equipment on 6 to-36-month terms. No outside financing. Minimum down payment. Towmotor handles all details.

Write **TOWMOTOR CORPORATION,** Div. 2609, 1226 E. 152nd St., Cleveland 10, O.

TOWMOTOR THE ONE-MAN-GANG

FORK LIFT TRUCKS and TRACTORS

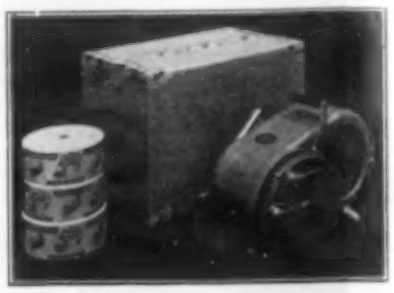
SINCE 1919

TOWMOTOR ENGINEERED FOR QUALITY PERFORMANCE

If you write maker identify as IEN - 9826

Dispensing - Hand machine measures, wets, delivers gummed tape

Source: NASHUA CORPORATION
Dept. IEN, Nashua, N. H.



Speeds packaging

Tayper Model 52 is a new manually operated dispenser employing the company's patented Length-O-Graph measuring mechanism. This mechanism can be set so pulling the machine's lever measures the required length of tape to a maximum of 36 in. and at the same time moistens it, cuts off and delivers. The machine will handle tape to 4 in. in width. It is particularly suited for use with the company's It-stix tape, which is printed to insure against pilferage in transit.

If you write maker identify as IEN - 9827

Control - Potentiometer employs continuous standardization

Source: BRISTOL COMPANY
107 Bristol Road, Dept. IEN, Waterbury 20, Conn.

Technical data upon request

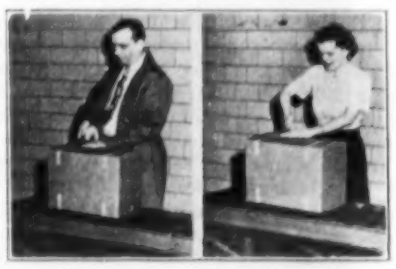
The Dynamaster potentiometer recorder is now available in round and strip chart designs with a constant voltage source that continuously standardizes the instrument and eliminates need for dry cells. The standardizing device employs a voltage regulator in connection with the standard cell. Output of a dry disc rectifier is regulated and the standard cell is floated across the load to minimize deviation of load value from the required value.

The instrument measures the input dc. signal from a thermocouple or resistance thermometer bulb. It can be specified to indicate and record and also can be accompanied by the required equipment for control installation. The continuous standardization eliminates need to periodically interrupt recording or controlling action over a process.

If you write maker identify as IEN - 9828

Strapping - Adhesive tapes, filament reinforced in range of widths

Source: BRAINARD STEEL DIVISION
Larchmont Ave., Dept. IEN, Warren, Ohio



Specifications on request

The company announces addition of self-adhesive and gummed reinforced tapes to its previously developed line of steel strapping for packaging applications. Accompanying the tapes is a line of dispensers.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9829

"Neither Snow, Nor Rain, Nor Heat . . . Stay These Couriers . . ."

MATTER OF FACT, THIS BOX IS IMMUNE TO ALL CONDITIONS OF HUMIDITY, HEAT, DAMPNESS — INSIDE OR OUTSIDE OF THE PLANT

IT'S STITCHED WITH WILSTITCH

The boys in the shipping room like Wilstitch. It's dependable when the going is rough. Uniform size and temper, smooth edges prevent jamming—insure interruption-free production. Wilstitch comes in liquor, copper and galvanized finishes, and in the right gauge for your job.

PROVE IT TO YOURSELF

Send for a sample of Wilstitch wire in the gauge and finish your job requires.

Manufacturers of WIRE — NAILS — RIVETS

WILSON STEEL & WIRE COMPANY

4640 South Western Avenue Chicago 9, Illinois

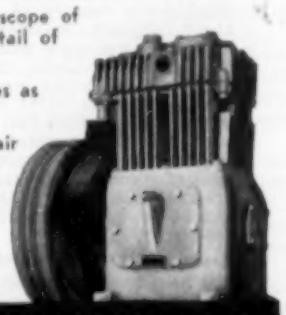
If you write maker identify as IEN - 9830

FREE! 16 IDEAS

FOR PUTTING COMPRESSED AIR TO WORK

Send for *"Air Makes Things Hum."* It contains . . .

- 12 pages of stimulating ideas on compressed air use all based on actual applications now functioning at a profit
- illustrated clearly with the full scope of the industrial operation, plus detail of compressor location
- including industrial safety devices as well as production short cuts



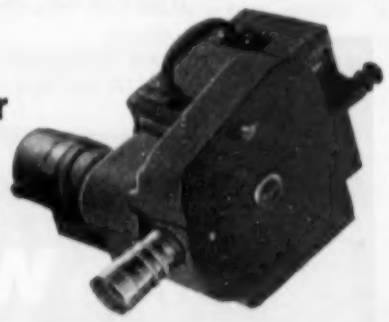
You'll see a way to put compressed air to work in your plant or on your product. *"Air Makes Things Hum"*—thought provoking, practical, FREE. Send for your copy now. Write Dept. H-38.

Quincy COMPRESSORS

QUINCY COMPRESSOR CO.
QUINCY, ILLINOIS
Branch Offices: New York • Philadelphia Detroit • Chicago • Minneapolis • St. Louis Dallas • San Francisco

If you write maker identify as IEN - 9831

Here's a trouble shooter for action too fast to see



A Kodak High Speed Camera lets you see what's going on by slowing action down to a walk. It takes up to 3200 pictures a second on 16mm film. An oscillograph trace can be superimposed on the same film. When the film is projected at normal speed, action appears slowed as much as 200 times.

If you have a product design or performance problem involving high-speed mechanical action or fluid flow, a Kodak High Speed Camera may well provide the answer. It is easy to operate and has the right speed range for most industrial applications. To find out how others have used this versatile instrument, write for a copy of the booklet, "High Speed Motion Pictures in Industry."

Industrial Photographic Division
EASTMAN KODAK COMPANY
Rochester 4, N. Y.

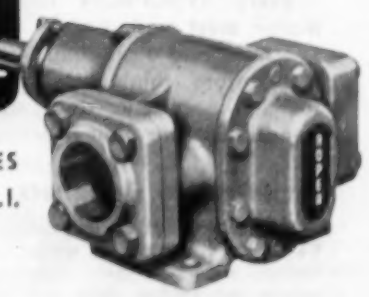
the Kodak HIGH SPEED Camera

Kodak

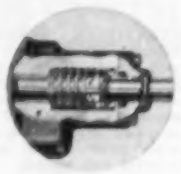
If you write maker identify as IEN - 9832

ROPER SERIES K

FOR HYDRAULICS PRESSURE LUBRICATION FUEL TRANSFER



¾ to 50 G.P.M. SIZES
Pressures to 150 P.S.I.



Mechanical Seal
Ideal where repacking is not convenient. Uses any drive, no pedestal bearing needed.

Extremely compact in all sizes . . . handle total suction lifts up to 25 feet . . . operate quietly and with equal efficiency in either direction. Sizes 10 through 50 feature Roper Venturi Suction and Discharge Principle. Packed box or mechanical seal models available . . . also furnished with or without relief valve.

Send for Catalog

GEO. D. ROPER CORP.
209 Blackhawk Park Ave.
Rockford, Illinois

ROPER Rotary Pumps

If you write maker identify as IEN - 9833

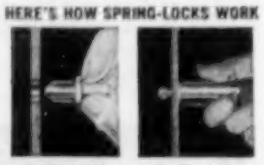
This steel insert, molded into plastic Spring-Locks, gives strength where it's needed—at the point of load or impact—eliminates doubts concerning the strength of plastic at these critical points.

The design flexibility of plastic Spring-Locks makes them ideal for a variety of uses... shelf supports, washer cover knobs, drawer pulls and many others. Spring-Locks cut material and assembly costs, too. No special tools, bolts, nuts or threadings required. Just a half-turn locks them securely.

Many standard shapes and sizes of Simmons Spring-Locks are available or any shape head can be designed. Send for full details.

Any shape head can be molded in metal or plastic.

HERE'S HOW SPRING-LOCKS WORK



1. *Insert* 2. *Twist*
Steel insert carries load.

SIMMONS FASTENER CORPORATION
1758 North Broadway, Albany 1, N. Y.

Simmons Spring-Lock ★ QUICK-LOCK ★ ROTO-LOCK

If you write maker identify as IEN - 9834

FOR AIR REQUIREMENTS UP TO 640 CFM

Avoid long runs of piping. Joy WL-80 Air Compressors can be used right where the air is needed. Their extreme compactness permits installation in very restricted area.

Eleven models range from 15 to 125 HP, produce from 81 to 641 CFM. Pressures up to 125 psi (high-pressure units to 250 psi).

Your choice of drives, too: Direct, V-Belt, Flange-mounted. Single or two stage, air-cooled, force-feed lubrication. Write for detailed Bulletin A-56.

Consult a Joy Engineer

JOY

JOY MANUFACTURING CO., OLIVER BLDG., PITTSBURGH 22, PA.
IN CANADA: JOY MANUFACTURING CO. (CANADA) LIMITED, GALT, ONTARIO.

If you write maker identify as IEN - 9835

SYNCHRON® TIMING MOTOR

"Work Horse of the Industry"

SINCE 1926

Every SYNCHRON Timing Motor must undergo 51 inspections and a grueling final test before shipment! Long-lasting accuracy and dependability are built in!

Invitation to Designers

If your product requires trouble-free synchronous timing motors or timing machines, get complete, concise engineering data showing how easily SYNCHRON Motors may be applied to mechanisms now in production or in the idea stage.

Consult HANSEN engineers without obligation.

SYNCHRON Timing Motors start instantly, pull up to 8 in. oz. at 1 RPM, operate in any position at temperatures from -40° to +140° F. Available with gear trains to convert any speed.

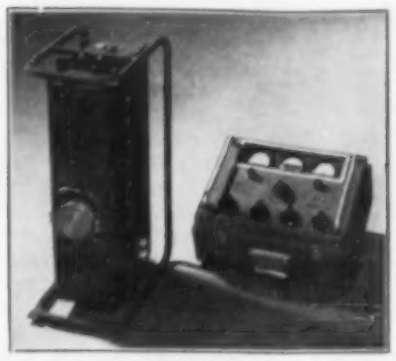
HANSEN MFG. CO., Inc., PRINCETON, IND.

HANSEN MANUFACTURING CO., INC., PRINCETON 2, IND.
Send catalog and engineering data to:
Name .....
Firm .....
Address .....
City ..... Zone ..... State .....

If you write maker identify as IEN - 9836

Testing - Portable X-ray for field, plant and laboratory use

Source: BALTEAU ELECTRIC CORP.
New & Meadow Sts., Dept. IEN, Stamford, Conn.



Baltograph

Rating is 195 kvp. for this new portable X-ray equipment. It is comprised of a self-contained X-ray head and a control unit. The head houses both the X-ray tube and the high voltage transformers. Weight is 153 lb. and overall dimensions are 26½ by 14 by 8¼ inches.

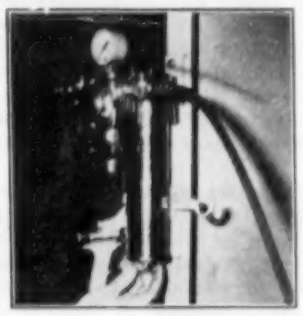
Operation is on 110 or 220-volt 60-cycle ac.

A small carriage is available to serve as a quickly adjustable "tripod". Also the head can be picked up with a crane for positioning over the work it is to photograph.

If you write maker identify as IEN - 9837

Separating - Compressed air unit applies in line to paint spray guns

Source: DE VILBISS COMPANY
300 Phillips Ave., Dept. IEN, Toledo 1, Ohio



Also for air tools

Rating is 50 cfm. for this new Type P-HLE oil and moisture separator. It is available in plain design or with a pressure regulator, similar to the unit previously described IEN-5104-53. The combination unit will control pressure to 135 lb. on the outlet side from an air line carrying 250 pounds.

The separating unit employs centrifugal action to remove oil and water. It does not require replacement or maintenance attention. The permanent type filter that operates with the separator to remove dirt can be taken out, cleaned and replaced. The filter chamber is drained through a valve at the bottom. The pressure regulator unit lists at $41 and the plain unit at $23.

If you write maker identify as IEN - 9838

A glowing cluster of live bubbles forms wherever there is a leak of gas, air or any gaseous substance under pressure when a new liquid material known as Leak-Tec is sprayed in the vicinity of the leak in a fine steady stream. The liquid is packaged in a polyethylene container equipped with a special dispenser. The container is squeezed to deliver the fluid. Typical applications are in inspecting refrigeration equipment, air conditioning installations, automatic instruments, air brakes, gas lines, instruments. The liquid is non-flammable, non-explosive, non-injurious. It is available from American Gas & Chemicals, Inc., 45 Rockefeller Plaza, Dept. IEN, New York 20, N. Y.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9839

NO OTHER WOOD SCREW ANCHOR HAS EQUALLED THIS PERFORMANCE . . .

10 TON PULL

NEVER BUDGED

RAWLPLUGS

AFTER 25 YEARS of USE

HEAD MILLWRIGHT STATES

"Rawlplugs have no equal. We have used thousands. This particular dust collector to be torn down was fastened to the wall with ¼" x 2" band iron, using six ½" x 3" lag screws. We put a cable around it, thinking we could pull it from the wall. I am sure we put a ten ton pull on it and never budged it, and had to send a man up on a seat to take the lag screws out and they were as bright as when they were put up 25 years before."

(signed) E. C. Snyder
Head Millwright, Salina, Kansas.

When you require maximum holding power and the least drilling time (you drill smaller holes) use Rawlpugs.

OTHER RAWL PRODUCTS for INDUSTRIAL ANCHORING

RAWLPLUGS	RAWL TOGGLE-BOLTS	RAWL-ANCHORS
RAWL-DRIVES	RAWL CARBIDE DRILLS	RAWLDRILLS
RAWL-TAPERS	RAWL HAMMER-SETS	DIMENSIONAL CHART

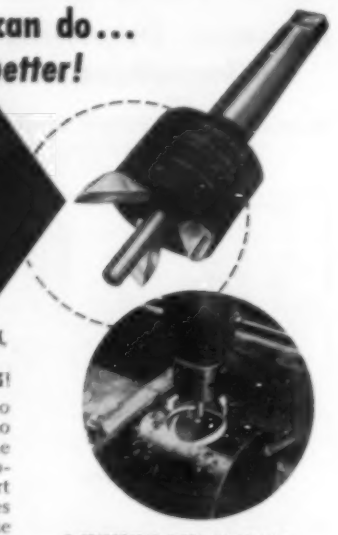
WRITE FOR SAMPLES ON YOUR LETTERHEAD

THE RAWLPLUG COMPANY, Inc.
271 CHURCH STREET • NEW YORK 13, N. Y.

If you write maker identify as IEN - 9840

Does jobs no drill can do... Does many jobs *better!*

Clark "HOLE-MAKER"



Produces round, true holes in CASTINGS, FORGINGS, BOILER PLATE, THIN SHEET STOCK, PIPE, TUBING, ETC.; Drills CROWNED, CYLINDRICAL, FLAT OR WEBBED SURFACES!

No triangular shaped holes, no grabbing on break-throughs, no "walking" on starts with the Clark "HOLE-MAKER"! Produces full-gauge holes from start to finish. Removable pilot guides HOLE-MAKER straight and true even on intermittent cuts. Will also use pilot drill.

Ideal production tool on TURRET LATHES, CHUCKING MACHINES, RADIAL DRILLS, DRILL PRESSES, PORTABLE ELECTRIC and PNEUMATIC DRILLS. Excellent for rough boring, finishing and trepanning. Cuts all ferrous and non-ferrous metals and other materials. Saves money, replaces large drill inventory... Bores castings, forgings, etc. 3 to 10 times faster than single pointing!

5 ADJUSTABLE SIZES COVER I.D.'s from 1" to 6"

Specify straight shank or MT 2, 3, 4. Other tapers on order.

MODEL	CAPACITY
102	1"–2"
203	2"–3"
304	3"–4"
405	4"–5"
506	5"–6"

When ordering, specify material to be cut.

ROBERT H. CLARK COMPANY
9330 Santa Monica Blvd., Beverly Hills, Calif.

If you write maker identify as IEN - 9841

THE TORRINGTON COMPANY
Specialties Division
900 Field Street, Torrington, Conn.

TORRINGTON SPECIAL METAL PARTS

Makers of Torrington Needle Bearings

If you write maker identify as IEN - 9843

THE INDUSTRIAL POCKETSCOPE® BY WATERMAN

The Model S-11-A Industrial & Television POCKETSCOPE is a small, compact, lightweight instrument for observation of repetitive electrical circuit phenomena. The Industrial & Television POCKETSCOPE is a complete Cathode Ray Oscilloscope incorporating the Cathode Ray Tube, vertical, horizontal, and intensity amplifiers, linear time base oscillator, blanking, synchronization means and self-contained power supply. This Industrial & Television POCKETSCOPE uses the new 3" Cathode Ray Tube especially developed for this lightweight and compact instrument. The Industrial & Television POCKETSCOPE can be used, not only for AC measurements, but for DC as well, inasmuch as it has vertical and horizontal amplifiers which are capable of reproducing faithfully within —2 db, from 0 to 200 KC.

Vertical and horizontal channels: 0.1v rms/inch with response within —2DB from DC to 200 KC, Repetitive time base continuously variable from 3CPS to 50KC with positive sync, Intensity modulation either through Amplifier or direct, Blanking of return trace is optional, Trace expansion is at least twice screen face, Line voltage variations, variation of input impedances, or manipulations of controls do not bounce trace off screen. The Scope stabilizes immediately.

WATERMAN PRODUCTS CO., INC.
PHILADELPHIA 25, PA.
CABLE ADDRESS: POKETSCOPE

WATERMAN PRODUCTS INCLUDE:

S-4-A	SAR	PULSESCOPE
S-5-A	LAB	PULSESCOPE
S-10-B	GENERAL	POCKETSCOPE
S-14-A	HIGH GAIN	POCKETSCOPE
S-14-B	WIDE BAND	POCKETSCOPE
S-15-A	TWIN TUBE	POCKETSCOPE

Also RAKSCOPES, LINEAR AMPLIFIERS, RAYONIC TUBES and other equipment

WATERMAN PRODUCTS

If you write maker identify as IEN - 9844

It should have been protected with S.S.White PLASTIC SHIPPING PLUGS and CAPS

Careless handling can damage unprotected threads of expensive equipment — dust or moisture inside inadequately sealed openings may ruin delicate operating mechanisms. These are common—and costly—hazards during shipment, maintenance and storage. They can cost thousands of dollars in repair and service work.

It pays to protect your valuable parts—especially when you can do it so easily and at *such low cost* with S.S.White plastic shipping plugs and caps. Screwed over threaded studs or into tapped holes, these inexpensive caps and plugs prevent damaged threads—keep out dirt and moisture—cushion exposed fittings from damage — or seal in oil or hydraulic fluids.

Make sure your production, shipping and maintenance departments have an adequate supply on hand.

WRITE FOR BULLETIN P-5203
It gives details on the range of sizes, shapes and types available. Send for a copy.

THE S.S.White PLASTICS DIVISION
DENTAL MFG. CO.
Dept. NP, 10 East 40th St.
NEW YORK 16, N. Y.
Western District Office • Times Building, Long Beach, California

If you write maker identify as IEN - 9846

Motor Control - Section assembly takes six combination plug-in units

Source: SQUARE D COMPANY
4041 N. Richards St., Dept. IEN, Milwaukee 12, Wis.

Manual SM244

A new standardized control section, for motor starting duty, has been added to the company's line of centralized motor control equipment to take six combination plug-in starter units. Section dimensions are 20 by 20 by 90 inches. Edge-to-edge mounting of horizontal bus bars and the use of a tubular vertical bus provides high short circuit strength.

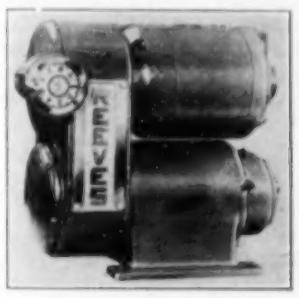
The plug-in units are enclosed on all sides. Unit doors are attached to the main structure and can be reclosed, after the unit is removed, to protect operating personnel. Vertical wiring channels and openings into the plug-in units are designed so wires can be laid in place without difficulty.

A steel barrier separates the horizontal wiring channel from the horizontal bus bars. A removable operator's panel, in the door of each individual unit, accommodates a maximum of four push buttons, selector switches or pilot lights. The arrangement assists in removal of the control center units since no wires need to be disconnected from the pilot devices.

If you write maker identify as IEN - 9847

Drive - Variable speed unit, motor and geared V-belt transmission

Source: REEVES PULLEY CO.
800 N. Wilson St., Dept. IEN, Columbus, Ind.



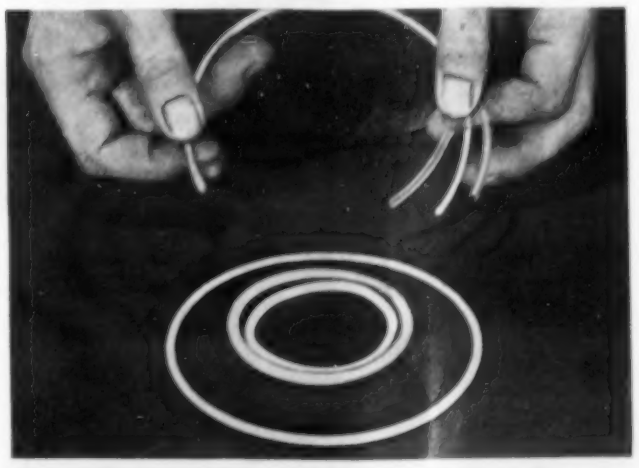
Bulletin M-543

Illustrated is new assembly of the Vari-Speed Motodrive in ratings from ¼ to ¾ hp. and in speed range from 2 to 10 to 1. The new unit represents improvement over the assembly previously described IEN-1250-53. It is available in horizontal, vertical and angular models and also with a vertical downward facing output shaft. Speeds from 3 to 4,600 rpm. are available.

The motor is direct connected to a variable pitch sheave at which pitch is altered by turning a hand wheel or by remote connection for automatic control at the hand wheel shaft. The corresponding variable pitch sheave on the driven shaft is backed by a self-compensating spring that maintains correct belt tension. Heat treated helical reduction gearing is located on the output side of the assembly. Lubricant is supplied through a spiral groove to serve all of the sliding surfaces. An overflow outlet carries excessive lubricant away from the disc faces and the V-belt. Two lubricating points are located on the belt end of the unit where pressure fittings are located.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9848



"O" RINGS WITH MEMORY

For the Toughest Chemical, Thermal and Mechanical Installations . . . They're made of KEL-F® polymer. Fluorocarbon plastic resists **all** acids, **all** alkalis, solvents. Low "cold flow", excellent "memory" assure positive sealing from sub-zero to 300°F temperatures. **Many solid and resilient-core "O" ring constructions are produced using KEL-F polymer plastics.**

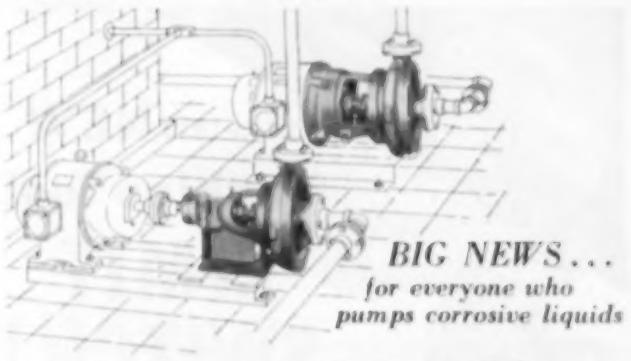
KEL-F

For the names of manufacturers of these and other products of KEL-F polymer write for descriptive "BUYERS GUIDE" . . . Chemical Manufacturing Division, Dept. A-9, The M. W. Kellogg Company, Danforth Avenue, Jersey City 1, N. J.

TRI-FLUORO-CHLORO-ETHYLENE POLYMERS

®"KEL-F" is the registered trade-mark of The M. W. Kellogg Company

If you write maker identify as IEN - 9849



Now you can get the **"custom built"** *features you want at no penalty with the new* **AMPCO® Centrifugal Pump**

In a given pump size, new standard units give at least 108 different combinations, plus maximum resistance to corrosion, erosion, cavitation

This new 1750 rpm pump can be built to your special requirements by interchanging standard parts.

You can select all types of bearings and bearing lubrication. You can choose 5 basic types of shaft seals—mechanical or packed. You can get the exact shaft type you need from 4 different choices. You can select your pedestal height and type impeller.

And you can make modifications quickly and inexpensively in the field — save new pump expense when your conditions change.

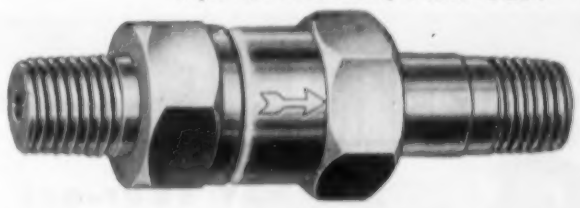
There's more. These new pumps are made from Ampco or other workable alloys to combat the effects of corrosive acids, alkalis, organic chemicals, etc.

In stock now in flows up to 600 gpm. Contact your nearby Ampco Pump Distributor or Field Engineer or write us.

Maximum Interchangeability without Penalty

AMPCO® **Ampco Metal, Inc.**
Dept. IE-9 • Milwaukee 46, Wisconsin
West Coast Plant • Burbank, California
P-138
®Reg. U. S. Pat. Off.

If you write maker identify as IEN - 9850



Assure positive air control with Schrader check valves

Check valves can deliver the correct cycle in a pneumatic control—or any of a hundred different uses.

Air can flow in one direction only through a Schrader Check Valve. Positive sealing action and long service are assured by the large seating area between the metal check and an oil resistant washer. All metal parts are brass, or are heavily plated.

Details on Schrader Check Valves and all Schrader Air Control Products are in the Schrader catalog. Send for your copy today.

A. SCHRADER'S SON
Division of Scovill Manufacturing Company, Incorporated
458 Vanderbilt Ave., Dept. D-47, Brooklyn 38, N. Y.

If you write maker identify as IEN - 9851

MAKE CAMS for your light work THIS EASY WAY

Start with Synthane Laminated Plastic Cam Blanks—
√ Accurately turned and bored √ Pin hole drilled
√ Radial layout lines imprinted

5 Sizes—Sold Separately or in Sets

Our 25th Year

SYNTHANE

MAIL THIS COUPON TODAY

SYNTHANE CORPORATION
5. River Road, Oaks, Pa.

Please ship the following and bill us:

Size	Price Per Set	Price Each Turret Cam Blank (1 Per Set)	Price Each Cross Slide Cam Blank (2 Per Set)
No. 00	$3.00 ☐	$1.20 ☐	$.90 ☐
No. 0	5.30 ☐	2.10 ☐	1.60 ☐
No. 2	8.10 ☐	3.60 ☐	2.25 ☐
No. 4	12.50 ☐	6.50 ☐	3.00 ☐
No. 6	19.15 ☐	10.75 ☐	4.20 ☐

State number of sets or blanks desired in squares above

NAME _____
COMPANY NAME _____
ADDRESS _____
CITY _____ STATE _____

If you write maker identify as IEN - 9852

YOU GET eleven CONTACT ARRANGEMENTS IN one

with this NEW Machine Tool LIMIT SWITCH!

- oil tight
- easy stocking
- easy mounting
- rugged mechanism
- 80 degrees overtravel
- 11 contact arrangements
- simple adjustment

Write for Bulletin SM-239. Address Square D Company, 4041 N. Richards St., Milwaukee 12, Wisconsin.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

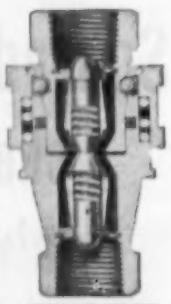
If you write maker identify as IEN - 9853

HANSEN

Quick-Connective TWO-WAY SHUT-OFF COUPLINGS

Female pipe thread connections from ⅛" to 1"

Both ends of line are positively sealed when you disconnect a Hansen Series HK Two-Way Shut-Off Coupling. To connect, just pull back sleeve and push Plug into Socket. To disconnect, merely pull back sleeve. No tools required. Identical valves in Socket and Plug permit free flow of gas or liquid when Coupling is connected—practically eliminate spilling of liquid or escape of gas when disconnected. Available in brass or steel.



SERIES 4-HK TWO-WAY SHUT-OFF COUPLING

Also Straight-Through and One-Way Shut-Off Couplings. Write for catalog.

THE HANSEN MANUFACTURING COMPANY
4031 WEST 150th STREET • CLEVELAND 11, OHIO

If you write maker identify as IEN - 9854

WE CARRY COMPLETE BAR STOCKS

- cold finished carbon
- hot rolled alloy
- cold finished alloy
- stainless

• All our warehouses carry a wide range of types, sizes and grades of steel bars. And you can always count on consistent high quality with the bars we carry. Why not simplify your buying by ordering *all* your bar stock from a single dependable source . . . U. S. Steel Supply?

WRITE FOR FREE BOOKLETS NOW

U. S. Steel Supply Division,
208 So. La Salle St., Chicago 4, Ill.
Please send me, without obligation, descriptive literature on the following types of bars:
☐ carbon C.F. ☐ alloy H.R. ☐ alloy C.F. ☐ stainless
Name.....
Firm.....
Address.....
City..... State.....

U. S. STEEL SUPPLY DIVISION

General Offices
208 So. La Salle St., Chicago 4, Ill.

Warehouses and Sales Offices Coast to Coast

UNITED STATES STEEL

If you write maker identify as IEN - 9855

Motor Control - Current relay for split phase and capacitor motors

Source: LEWUS ELECTRIC CO.
1254 W. Harrison St., Dept. IEN, Chicago 7, Ill.

Bulletin 4

Six coil sizes are available in this new current relay for starting duty on single phase capacitor start and split phase motors between ⅛ and 5 hp. The relay is designed to take the place of a centrifugal switch. It is provided with a variable magnetic phase shift within the relay coil for sensitive adjustment to assure correct operation. The company has prepared a bulletin showing connection diagrams for 110 and 220-volt motors with operating instructions and service hints.

If you write maker identify as IEN - 9856

Lubricating - Sight feed valve for gravity or pressure oil supply line

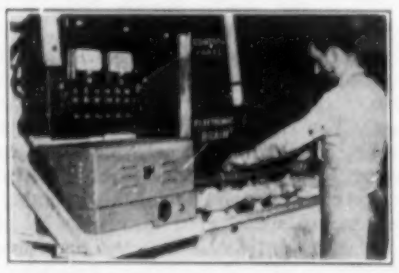
Source: OIL-RITE CORPORATION
2372 Waldo Blvd., Dept. IEN, Manitowoc, Wis.

Visible action

New valve is available in sizes from ¼ to ½-in. pipe thread and in angle or cross pattern with a brass body. It includes a square inlet body and a needle valve assembly with a sight glass and threaded outlet. Both parts are secured by a nut and O-rings capable of withstanding pressure. Inlet bodies can be interchanged on the valve body. The valve is needle design to adjust oil flow. A friction screw secures the adjustment. Intended application is in pressure or gravity oiling installations on paper mills, steam and gas engines, sugar mill machinery, gear units.

If you write maker identify as IEN - 9857

Automatic Plating Controller is a new electronic device to maintain predetermined voltage in the dc. busbars on a plating tank. It replaces the customary rheostat, requires no adjustment after it has been set initially. It takes care of changing load conditions without attention on the operator's part. Ask United Process Assemblies Inc., 75 E. 4th St., Dept. IEN, New York 3, N. Y.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9858

THE *New* WALDEN HAMMERHEADS with COPPER, LEAD or PLASTIC INSERTS

CONVERT YOUR STEEL HAMMER TO A

PATENT NOS 251543 2499802 OTHER PATS PEND

Soft faced HAMMER

. . . quickly and easily with this strong steel cup fitted with a soft metal or plastic insert — slipped over the head of your present hammer and held firmly in place by taut steel coil-spring as shown.

Write for catalogue

FAMOUS HAND TOOLS FOR OVER 50 YEARS

STEVENS WALDEN INC.
466 SHREWSBURY STREET
WORCESTER, MASSACHUSETTS

202-4

If you write maker identify as IEN - 9859

Kushion-Kraft

is used for efficient and economical cushioning, interior and exterior packaging, surface protection, shock absorption

KUSHION-KRAFT consists of plies of processed and rugated papers in either kraft or facial tissue or a combination of both. Thickness and strength is controlled by the number of plies and the type of paper used.

The variety of combinations of facial tissue and kraft permits every shipper to order a specific type of KUSHION-KRAFT material best suited for his product's shipping requirements.

Available in sheets and rolls

JIFFY MANUFACTURING CO. HILLSIDE, NEW JERSEY

If you write maker identify as IEN - 9860

AJUSTRITE

TRADE MARK

AUTOMATIC ADJUSTABLE CHAIRS and STOOLS

RSC Models

Size and style to fit every need.

Tops in factory, laboratory and school seating. Many leading industries have standardized on Adjustrite. Saves confusion among employees and eliminates maintenance. Has many advantages, high quality, no other like it. Try it in your shop for *30 days*. Full information on request.

TSS Model

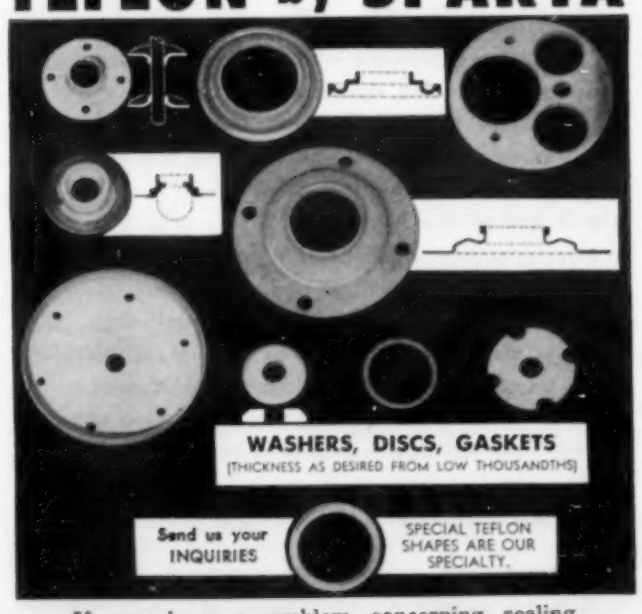
AJUSTO EQUIPMENT COMPANY
2146 Madison Ave. Toledo 2, Ohio

Adjusts 15" to 20" 18" to 26" 24" to 35"

SPLIT-SECOND ADJUSTMENT . . . TO ANY HEIGHT DESIRED

If you write maker identify as IEN - 9861

TEFLON by SPARTA



If you have a problem concerning sealing, non-friction, non-adhesion, chemical inertness, temperature, electrical or other . . . that one or more of the remarkable combinations of properties of TEFLON can help you solve, let us try to help.

SPARTA MANUFACTURING Company • EAST SPARTA, OHIO

If you write maker identify as IEN - 9862

LOWER MILLING COSTS!

No. 2-20 Milling Machine Table, 42" x 12" Table travel, 20"

Kent-Owens builds 'em *rugged* . . . *simple* . . . and *versatile* . . . machines adaptable to countless milling jobs. Designed for rapid, easy set-up and cost-saving operation. Extra rigid head mounting assures balanced load. Greater cutting efficiency with smooth, powerful cutter drive—only two gear contacts, motor to cutter. Write for bulletins on wide range of hydraulic and hand-operated machines. Kent-Owens Machines Co., Toledo, Ohio.

KENT-OWENS

Milling Machines

If you write maker identify as IEN - 9863

IF YOU EMPLOY CARPENTERS AND USE NAILS — YOU CAN PROBABLY DO IT FASTER, BETTER, CHEAPER WITH A NAILING MACHINE . . .

USE AN

fmc ALL PURPOSE INDUSTRIAL NAILER

THIS MECHANICAL NAILING MACHINE HANDLES EVERY PRODUCTION ITEM FROM BED FRAMES TO PALLETS AND GRAIN DOORS

You can cut nailing costs with mass production techniques. Modern nailing machine design eliminates the need for large production runs. Versatile operation permits even a small run to be handled with pay-for-itself economy. We can adapt a nailing machine to suit your product.

A TIME-SAVING DEVICE THAT WILL PAY DIVIDENDS THRU GREATER PRODUCTION

Driving multiple nails per stroke in a variety of nailing patterns outclasses any hammer-in-hand production. Uniform quality eliminates rejects—increases output.

HOW THE MACHINE IS MADE

Welded steel construction provides lasting hard use. Year after year performance with minimum maintenance.

SIZES AVAILABLE

Standard models select and drive up to 24 nails per stroke. Available in 48", 66" or 80" widths. Special custom adaptations are available on order.

HERE'S WHERE IT IS NOW APPLIED

Successfully adapted to nail pallets, shipping crates, redwood outdoor lawn furniture, cooling tower panels, bed spring frames, grain doors and many other wood products.

Available FROM fmc FOOD MACHINERY AND CHEMICAL CORPORATION

TRADE MARK BM753

FOOD MACHINERY AND CHEMICAL CORPORATION

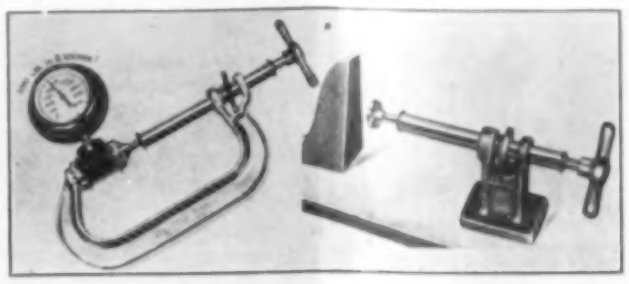
PACKING EQUIPMENT DIVISION, RIVERSIDE, CALIFORNIA

WRITE FOR FREE LITERATURE!

If you write maker identify as IEN - 9865

Clamp - Fast acting design for application in jigs and fixtures

Source: HALLWELL TOOL CO.
606 S. Hill St., Dept. IEN, Los Angeles 14, Calif.



List ranges from about $7 to $19

Holding capacity ranges from 1,500 to 4,000 lb. depending upon the size and style of this new fast acting clamp. It is available in C-clamp and tooling designs as shown to the left and right in the illustration. Each design is available in a range of sizes with openings maximum at 3 to 12 inches. Throat dimension, in the C-clamp, ranges from 2¼ to 5¾ inches. The plunger stands 3 or 4 in. in height above the base in the tooling design.

A spring backed metal wedge holds a sleeve against backing out when the clamp spindle is moved forward. It grips the sleeve while the screw handle is turned for final tightening. The clamp is released by turning the screw handle in reverse direction and then moving the clamp wedge forward against the spring action. In this forward position, the spindle and sleeve can be withdrawn in straight line movement.

If you write maker identify as IEN - 9866

Truck - Low lift electric designed for pallet loads to 2 ton

Source: YALE & TOWNE MFG. COMPANY
11000 Roosevelt Blvd., Dept. IEN, Philadelphia 15, Pa.

Type RP-4

New assembly in the Warehouser electric rider type low lift pallet truck is designed for operation in 5 and 6-ft. aisles. It can be carried in elevators and operated on flooring that will not sustain heavier rider type trucks.

Lift range is 4 in. with lift speed at about 5 sec. for a capacity load through the 4-in. range. Overall spread of the pallet forks is in four standard widths between 25 and 36 inches. Fork lengths range from 36 to 60 in. in 6-in. steps. The truck is mounted on spring loaded dual caster wheels. The drive unit is an enclosed double reduction spur gear assembly direct connected to the drive axle. This assembly is rotated by a hand wheel, for steering, to make a turn in a 200 deg. arc.

The control lever, for operation forward or in reverse, can be positioned for the operator to face in either direction. There are three speeds, maximum at 5¼ mph. without a load, or 4 mph. when fully loaded. Hoisting and lowering of the load is controlled by a second lever on the operator's left.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9867

SHARP *or* FUZZY?

What kind of prints are YOU getting from your drawings? If they're not sharp and clear . . . if they're confused by the ghost of erasures . . . then it's high time to specify . . .

GHOST-PROOF

ELLCO-VEL® TRACING PAPER

Erase as often as you wish, re-draw again and again . . . there's never a hint of a ghost in prints. Crumple it, handle it, treat it rough . . . ELLCO-VEL will out-perform your present paper in delivering legible prints. Just one trial will sell you on this 100% rag vellum, with the eye-resting blue tint!

FREE SAMPLE KIT!

Give ELLCO-VEL your own drawing board test. Write today for FREE sample kit!

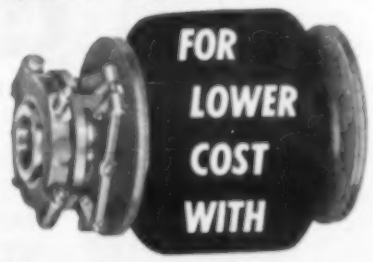
B. K. ELLIOTT CO.

PITTSBURGH • DETROIT • CLEVELAND

WRITE DEPT. 91E • 126 SIXTH ST. • PITTSBURGH 22, PA.

If you write maker identify as IEN - 9868

DESIGN



FOR LOWER COST WITH

ROCKFORD CLUTCH engineers are helping product designers reduce costs — by making possible *quicker clutch installation, easier clutch adjustments,* and reducing *after-sale service* to a minimum. Because ROCKFORD CLUTCH precision, capacity and stamina are greater than ever, product owners' up-keep costs are lower. Now is the time to have ROCKFORD clutch engineers give your product the benefit of lower clutch cost plus competitive operating advantages.

Send for This Handy Bulletin

Shows typical installations of ROCKFORD CLUTCHES and POWER TAKE-OFFS. Contains diagrams of unique applications. Furnishes capacity tables, dimensions and complete specifications.

ROCKFORD CLUTCH DIVISION
BORG-WARNER
303 Catherine Street, Rockford, Illinois

ROCKFORD CLUTCHES

If you write maker identify as IEN - 9869

Evans King-Size 10-ft. Steel Tape

STANDS UP STRAIGHT for UPRIGHT MEASUREMENTS

Those long upright measurements are easy and accurate with this new EVANS King-Size 10-ft. White-Tape. The 33% wider blade (full ¾") stays straight up without bending or buckling. You get a *free* belt clip and Tenite utility case with every tape. Sliding end hook for inside or outside measuring and . . .

it's marked so you don't have to figure! no other tape is marked this Evans way.

Whichever way you work, in inches or feet and inches, you read *instantly* without having to stop and figure.

The EVANS King-Size White-Tape Is the Top 10-ft. Tape value at only $2.39. Purchase from your supplier.

another **EVANS** value—

THE ONLY 12-FOOT POCKET WHITE-TAPE

"Standard blade ½" wide"

This L-O-N-G-E-R Pocket White-Tape only $1.89

Purchase from your supplier.

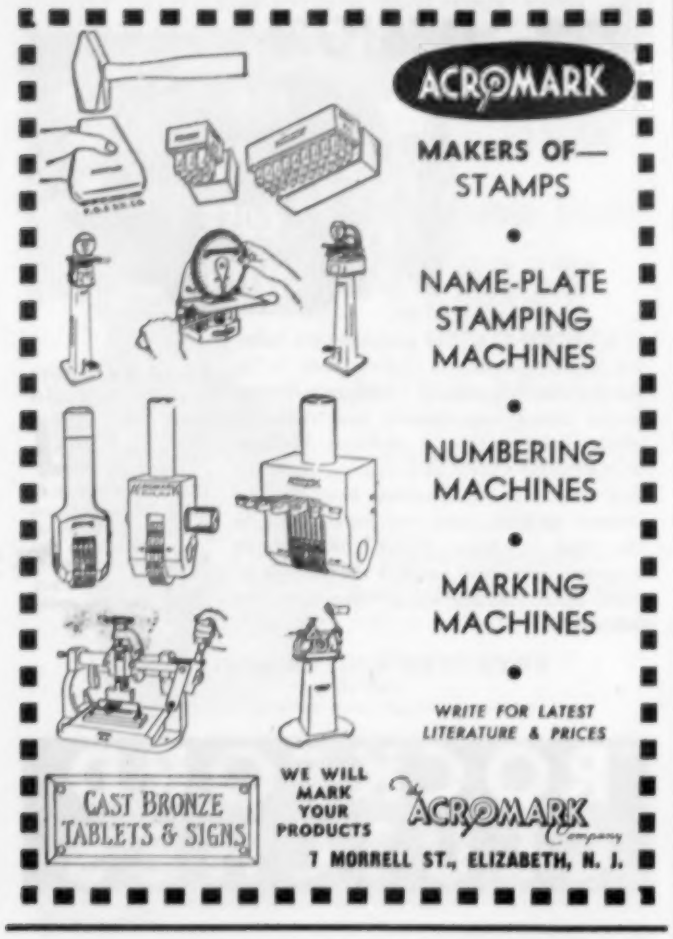
Now, a pocket steel tape that measures a full 12 feet — eliminates the inconvenience and inaccuracy of adding two measurements as you do with shorter tapes. Exclusive EVANS double markings (same as King-Size above). Chrome plated case is *no bigger than cases for shorter tapes.* Self-adjusting sliding hook for 100% accurate inside or outside measurements. Each tape packed in FREE transparent Tenite utility case. **Free Sample Tape Available. If your distributor does not carry these EVANS Tapes, have your purchasing agent write direct to the factory giving the name of his distributor and requesting a free sample tape. Specify whether 12 ft. L-O-N-G or King Size Tape is wanted.**

Evans & CO.

400 Trumbull Street, Elizabeth, N. J., U. S. A.

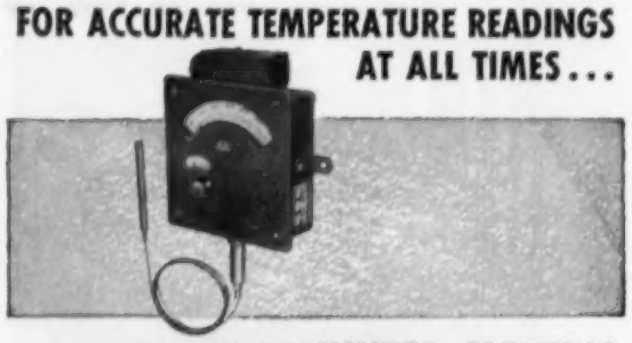
Makers of Evans "Long Tapes"—25-50-75-100 ft. and Evans 6-ft. Folding Rules

If you write maker identify as IEN - 9871



If you write maker identify as IEN - 9872

FOR ACCURATE TEMPERATURE READINGS AT ALL TIMES . . .



. . . SPECIFY *UNITED ELECTRIC*
TYPE E8N INDICATING CONTROL

The Type E8N is a wide range, precision-built indicating control that shows the exact temperature of the thermal bulb at all times. It is simple in design, contains no delicate mechanisms and is accurately compensated for wide ambient temperature changes. Various models are available, covering ranges of 300°F to 600°F between limits of -150°F to 600°F, permitting a high degree of sensitivity and repeat accuracy. For complete details and electrical specifications, write for Bulletin #4-1.

UNITED ELECTRIC CONTROLS COMPANY
80 School Street, Watertown, Mass.

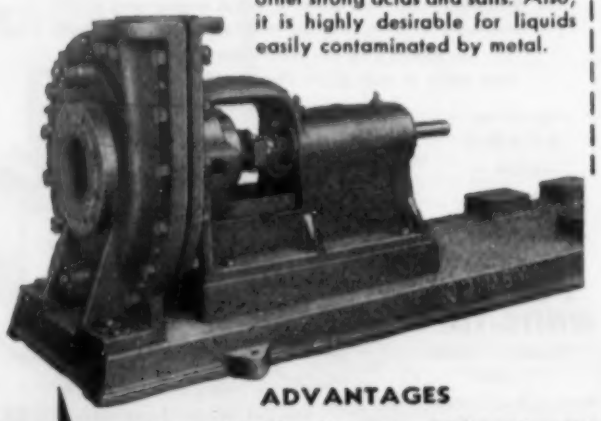
STANDARD & SPECIAL THERMOSTATS & PRESSURE SWITCHES

If you write maker identify as IEN - 9873

Custom Rubber Lined PUMPS

Warren-Quimby Type DB

For handling hydrochloric and other strong acids and salts. Also, it is highly desirable for liquids easily contaminated by metal.



ADVANTAGES

1 Custom rubber lined to meet special requirements
2 Resistant to chemical corrosion
3 Resistant to physical abrasion
4 Sound rubber-to-metal bond
5 Capacities, to 2000 G.P.M., heads to 125 feet
6 Sizes, ½" to 8"
7 Over-size bearings
8 Baseplate drip-protected

Send for Bulletin WQ-212 IEN-9

WARREN PUMPS
WARREN STEAM PUMP COMPANY, INC., WARREN, MASSACHUSETTS

If you write maker identify as IEN - 9874

Vibrating - Pneumatic unit promotes flow in bins, hoppers, chutes

Source: CLEVELAND VIBRATOR CO.
2828 Clinton Ave., Dept. IEN, Cleveland 13, Ohio

Two of eight sizes

Two new sizes, with 1 and 5-in. pistons, have been added to the company's Type F line of pneumatic vibrators to make a total of eight sizes in the line. The 1-in. size is a light weight unit. The 5-in. vibrator is a heavy duty long stroke design for application on large bins and hoppers where arching, bridging and sticking conditions present a difficult problem.

All sizes in the line operate on 25 to 100-lb. pressure with maximum efficiency at 80 pounds. All are suited for continuous or intermittent action and can be employed on bins and hoppers containing from one to several hundred ton of material. The company supplies a kit that includes the vibrator, the operating valve, a lubricator, a mounting base plate and the hose and fittings.

If you write maker identify as IEN - 9875

Grinding - Flexible shaft machine with motor on wheel equipped stand

Source: STOW MFG. COMPANY
25 Shear St., Dept. IEN, Binghamton, N. Y.

For utility use

Rough floors do not represent an obstacle against movement of this new Type C-50 flexible shaft machine. It can be moved from one location to another for operations that include sanding, wire brushing, drilling as well as grinding. The machine is available with a ¾ or 1-hp. motor and a ½-in. flexible shaft measuring 6 ft. in length. Four speeds are between 1,150 and 5,750 rpm. The motor and driving head are trunnion mounted to swivel on the stand and follow movements of the operator as he manipulates the hand piece in operation.

If you write maker identify as IEN - 9876

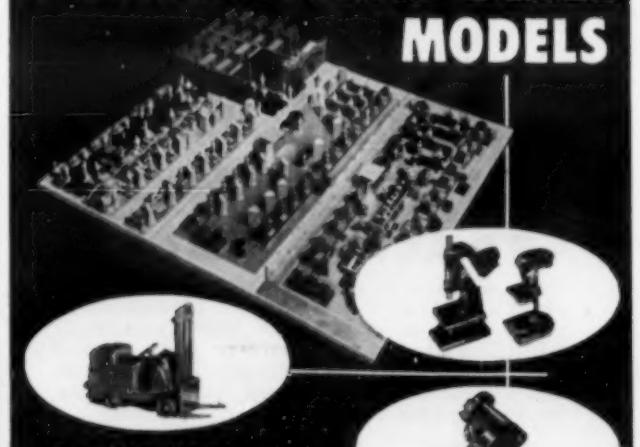
Aluminum coated wire is now in pilot plant production by American Chain & Cable Co., 929 Connecticut Ave., Dept. IEN, Bridgeport 2, Conn. The wire has excellent corrosion resistance and is sufficiently ductile so it can be drawn to a desired thickness. Tests indicate many electric utility applications. The wire is currently being used for guy lines. One, made up of 7 strands, measures ½ in. in diameter and has minimum strength of 12,100 pounds. The same diameter, in high strength strands with 7 wires, has minimum strength of 18,800 lb. and the same diameter, in utility specification strand with 7 wires, rates 25,000 pounds.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9877

NEW MANUFACTURING TECHNIQUES DRASTICALLY CUT COSTS OF . . .

3-DIMENSIONAL SCALE MODELS

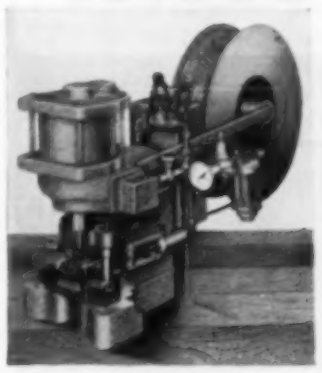


Complete plant layouts . . . standard or special machinery and miscellaneous equipment available. Over 12,000 items in stock. Prompt deliveries.

VISUAL PRODUCTION PLANNING, INC.
Connellsville, Pennsylvania

If you write maker identify as IEN - 9878

FAST, COST-CUTTING TERMINAL ATTACHING on NEW "P-M"
advanced design



COLD CRIMPING MACHINE

Advanced design of new P-M automatic terminal attaching machine provides many improvements that drastically reduce tool set-up time and production lag. Interchangeable rolling tools are quickly set up in special die-set fully accessible in machine, and removable for faster tool changing on bench. Extra die-sets keep tools set up for quick job change-over.

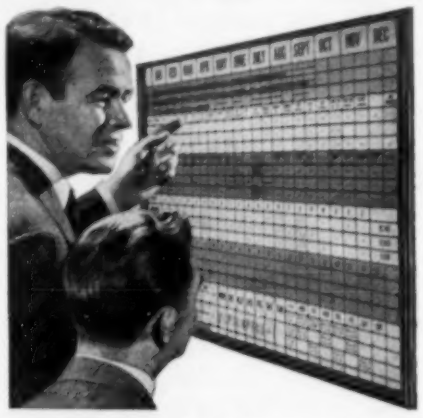
Using strip terminals in continuous form supplied on nonreturnable reels, the machine automatically crimps and cuts off in one operation to produce fast, efficient, economical terminations. Engineered for rugged, continuous operation. Requires minimum production space. Simple, quiet air pressure operation. Modern color scheme and design innovations promote operator acceptance and minimize operational fatigue.

Low priced for short or long runs, P-M machine is sold outright with set of rolling tools ready for operation. Illustrated catalog of standard strip terminals, with full specifications, available when requested on company letterhead.

PATTON - MacGUYER CO.
18 Virginia Avenue . . . Providence R. I.

If you write maker identify as IEN - 9879

GRAPHIC VISUAL CONTROL



THE BOARDMASTER SYSTEM

★ Graphic Picture of Your Operations—Spotlighed by Color
★ Facts at a Glance—Saves Time and Eliminates Confusion
★ Simple and Flexible—Easily Adapted to Your Operations
★ Easy to Operate—Type or Write on Cards, Snap on Board
★ Ideal for Production, Scheduling, Inventory, Traffic, Etc.
★ Compact, Attractive. Made of Metal. Over 50,000 in Use.

Complete Price **$49.50** Including Cards

FREE 24-Page ILLUSTRATED BOOKLET E-100 Without Obligation

GRAPHIC SYSTEMS, 55 West 42nd St., New York 36

If you write maker identify as IEN - 9880

HAND HYDRAULIC PUMP

Single and Double Designs to 20,000 PSI

With or without Reservoir

Standard Reservoirs 70, 160, 910 Cu. In. Capacity

Interchangeable Pistons ⅜-½-¾ Inch
1-Inch Piston (Special)
Pipe connections 1¼" N.P.T.
Handle length is 18 inches
Unit can be bolted or welded into position

"We specialize in hand pump units to operate in temperatures from minus 65° F to plus 160° F and with any capacity reservoirs required."

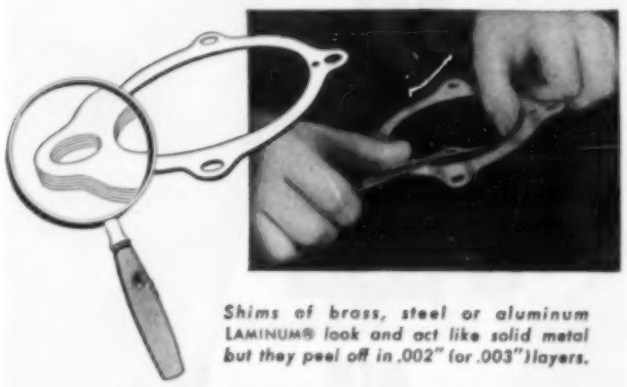
The single pump with ½" or ¾" piston now available in stainless steel.

WILLIAM S. PINE
1635 E. 22nd St., Los Angeles 11, Calif.

If you write maker identify as IEN - 9881

LAMINATED SHIMS

SIMPLY PEEL FOR ADJUSTMENT



Shims of brass, steel or aluminum LAMINUM® look and act like solid metal but they peel off in .002" (or .003") layers.

Laminated shims provide great accuracy with easy, economical machining tolerances. This simple method of spacing adjustment reduces lathe time, eliminates standby machines. Adjustments in thousandths are made right at the job with a penknife. You eliminate the counting, stacking and mixing of ordinary shim procedure.

SEND TODAY for our Engineering Data File

LAMINATED SHIM COMPANY, INC.

2109 UNION ST., GLENBROOK, CONN.

If you write maker identify as IEN - 9882

SALT BATH BRAZING

the fastest, cheapest production method

Maximum Production in Minimum Floor Space!

180 steel bicycle forks per hour copper brazed in an Ajax Salt Bath measuring only 4" x 36" x 24"! Quenched directly from brazing bath into water.

58 Aluminum Joints Brazed Simultaneously!

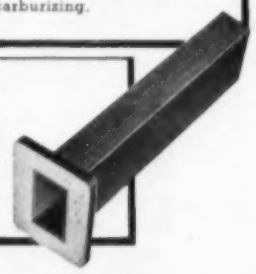
Aircraft cabin heater with 58 separate aluminum parts brazed in 10 min. Eliminated hand torch brazing requiring 7 hrs. per unit. Thin aluminum sheets are brazed to structural parts 10 times heavier without warping.

Brazing Cost: Nothing

Steel starter pedal brass brazed and carburized simultaneously in the same Ajax furnace with one heating. Former method required two furnaces, one for brazing, another for carburizing.

Rejects Reduced: 70% to Zero!

Brass electronic wave guide with stainless steel flange brazed with silver solder in Ajax Salt Bath at 1350°F. in 1½ minutes, then air cooled. Rejects reduced to 0 whereas with previous methods, rejects ran as high as 70%.



Work immersed in batches . . . 5, 20 or 100 assemblies in each batch.

All joints brazed simultaneously . . . in seconds rather than in minutes.

Decarburization of steel assemblies avoided . . . no reheating needed. Clean surfaces assured for subsequent processing.

No cooling chamber required . . . no hydrogen atmosphere. 75% less floor space!

Brazing AND hardening . . . can be done simultaneously in a single operation.

First cost of equipment lower . . . than any other production brazing system.

Let us braze a job batch of your parts in our Metallurgical Service Laboratory. See how much faster your work can be handled, how much your product can be improved. Write for details.

AJAX ELECTRIC COMPANY

The world's largest manufacturer of electric heat treating furnaces exclusively

900 Frankford Avenue
Philadelphia 23, Penna.

AJAX Trademark

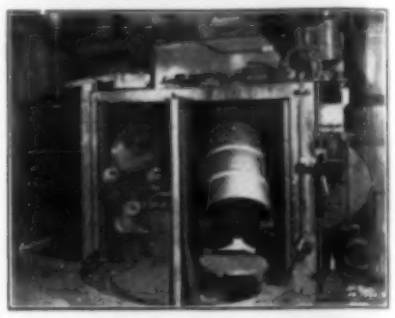
AJAX HULTGREN

ELECTRIC SALT BATH FURNACES

If you write maker identify as IEN - 9884

Cleaning - Abrasive blast machine for open and closed end steel drums

Source: AMERICAN WHEELABRATOR & EQUIPMENT 1119 S. Byrkit St., Dept. IEN, Mishawaka, Ind.



Partition separates drums

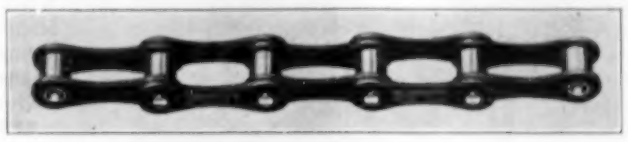
Abrasive is thrown centrifugally by a rotating bladed wheel mounted in the rear wall of the housing of this new dry blast cleaning machine to clean a drum mounted to rotate on one of the two working stations of the machine's circular table. At the same time, an operator removes a cleaned drum and places a soiled one at the second station which stands open at the front of the machine. The illustration shows the circular table rotated through part of its turning arc between loading and unloading positions with a coiled drum entering the work chamber on one side while a cleaned drum and its removable lid are issuing from the chamber on the other side.

The machine will handle 30 and 55-gal. steel drums to clean the exterior surfaces of closed end units and both the interior and exterior surfaces of open end drums, together with the lids. Abrasive falls into a hopper at the bottom of the assembly after it strikes the drum. From there it is conveyed by an elevator to the top of the machine. The contaminants, removed from the drum, plus the abrasive worn too small to be used again, are sorted out. The good abrasive is fed back.

If you write maker identify as IEN - 9885

Drive - Double pitch roller chain made in four pitches from 1 to 2 inches

Source: DIAMOND CHAIN CO. 449 Kentucky Ave., Dept. IEN, Indianapolis 7, Ind.



Specifications in Bulletin 34

Figure 8 contour links connect the roller equipped pins and bushings in this new double pitch power transmission chain. The rollers are the same diameters and width as those of American Standard Chains of ½ to 1-in. pitch. The chain pitch is twice that of the corresponding American Standard. Roller width ranges from 1/16 to 5/8 inch. Roller diameter is 0.312 to 0.625 inch. Pin diameter is 0.156 to 0.312. The pins are provided in riveted or cottered design. Connecting links are supplied with the chain.

The new chain, and sprockets to operate with it, can be selected in the same manner as transmission roller chains and sprockets of standard pitch. The rating of the double pitch chain, with the smaller sprocket having a specific number of effective teeth turning at a specific rpm., is the same as that of the standard base chain with sprockets having the same number of teeth turning at twice the rpm. The sprockets should have the largest practical number of teeth, no less than 15, for smooth operation.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9886

New small counters of GREAT RELIABILITY

Shaft extension at right with rigid steel arm

Shaft extension at left with spring steel arm

MODERN COUNTING DEVICES

Stroke and Revolution Counters
Coil Winding Counters
Electric Counters
Automatic Batch Counters
Actuating Switches

Complete catalog mailed on request

Ideal for Built-in Application

- Endurance tested for accuracy to over 100 million counts.
- Small, compact, rugged construction. Main body only 1 11/32" x 1 11/32" x 1 7/16" high.
- Reset to zero with one complete turn of reset knob.
- Slotted holes for easy mounting.
- Steel case and frame with enduring chrome plated finish.
- Furnished with rigid or flexible operating arm, right or left shaft extension, top-coming or top-going arm action.

SEE, COMPARE and TEST the new Junior King. Ask your PIC Representative or write.

PRODUCTION INSTRUMENT COMPANY
700-10 W. Jackson Blvd., Chicago 6, Ill.

If you write maker identify as IEN - 9887

BARBER COLMAN

Barcol®

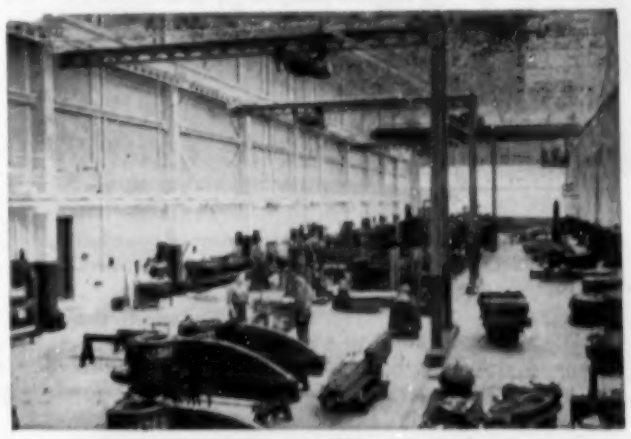
OVERdoors

for rugged industrial use

Barcol OVERdoors operate smoothly and easily because twin torsion coil springs are engineered to balance the exact weight of the door, glass, paint, and every ounce of plated hardware. Add the patented Barber-Colman cam closing action, and your door is sure to be weather-tight yet easy working. To speed plant traffic and save heat, use Barcol electric operators with pull cords or convenient wall switches. Your Barcol distributor sells, installs, guarantees, and services. Look under "Doors" in phone book.

BARBER-COLMAN COMPANY, DEPT. V49, ROCKFORD, ILLINOIS

If you write maker identify as IEN - 9888



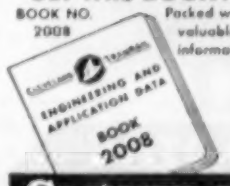
SINGLE LEG GANTRIES . . .

Little Cranes that Speed Production

Skilled workers often wait five or ten minutes and more for crane service. By providing a sufficient number of gantry cranes, much or all of this lost time can be eliminated and production aided. Gantry cranes are inexpensive; several can usually be purchased for less than the price of an additional large overhead crane and far better handling service provided.

GET THIS BOOK!

BOOK NO. 2008 — Packed with valuable information



CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
4213 East 285th St. • Wickliffe, Ohio

CLEVELAND TRAMRAIL

If you write maker identify as IEN - 9889

NEW NIBCO SILLCOCKS

packed with quality!

and at Competitive Prices!

Specify the NIBCO matched line of Sillcocks, Angles, Stops, Stop and Wastes, Oil Tank Valves, Boiler Drain Valves at your jobber's. Write for new Catalog NVC-1, Supplement A.

NIBCO NORTHERN INDIANA BRASS CO.
961 PLUM STREET, ELKHART, INDIANA

If you write maker identify as IEN - 9890

OIL pressure to 750 — AIR to 200 P. S. I.

Now the sensational new T-J Spacemaker sets the pace in compact cylinder design and efficient performance!

New "Self-Aligning" adjustable oil cushion means faster acceleration and better cushion than ever before . . . New T-J Super Cushion Flexible Seals for air insure positive cushion with automatic valve action for fast return stroke.

More plus features include—heavy wall, precision honed, hard chrome plated, seamless steel body . . . leakproof cylinder head to body construction . . . heavy duty, high-tensile, *hard chrome plated piston rod.* Write for bulletin SM-454-2. The Tomkins-Johnson Co., Jackson, Mich.

T-J TOMKINS-JOHNSON
RIVITORS . AIR AND HYDRAULIC CYLINDERS CUTTERS CLINCHORS

If you write maker identify as IEN - 9891

Hear Here . . .

Do plant noises drown out your *Telephone Calls?*

Do you have to shout at the top of your lungs, and listen with a finger in your ear . . . when phoning from your plant telephones?

Why compete with that noise? The Acousti-Booth reduces outside noise 50% because walls are of thick, sound absorbing material. Exterior of steel. Order, today. If you aren't satisfied, return it for a *full refund.* You risk only shipping charges.

$100

F.O.B. Chicago, Model 45 . . . if you want light fixture, add $9.

This Acousti-Booth takes less room than a large wall calendar.

Ask for Bulletin A-131

ACOUSTI-BOOTHS
Burgess-Manning Company, Architectural Products Div.
5970 Northwest Highway, Chicago 31, Ill.

If you write maker identify as IEN - 9892

ON EMERY CS-10 CRANE SCALE

Increased production makes a new low price on the Emery CS-10 Crane Scale . . . the best in its field . . . now only $295.

The Emery CS-10 Crane Scale provides . . .

- ✔ weighing up to 10,000 lbs. *in transit.*
- ✔ only 19⅛ in. headroom required.
- ✔ guaranteed accuracy ±0.2%.
- ✔ no knife edges, no sticky seals, no wear.
- ✔ rugged industrial-type construction.
- ✔ big 21½ in. unbreakable dial for easy reading.

Order your Emery CS-10 Crane Scale at the new low price. Send for information today.

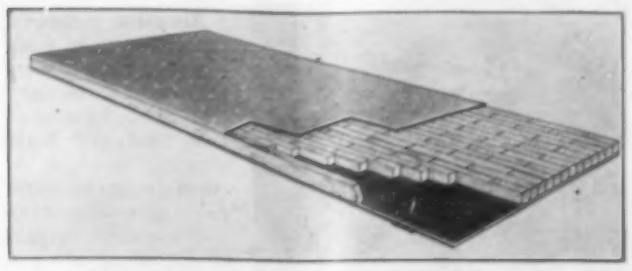
THE A. H. EMERY CO. NEW CANAAN 7, CONNECTICUT

Please send me descriptive bulletin No. 541.
NAME _____
POSITION _____
Attach to, or write on, your company letterhead.

If you write maker identify as IEN - 9893

Furniture - Wood table top, plastic faced laminated construction

Source: ROCK ISLAND MILLWORK CO.
2525 4th Ave., Dept. IEN, Rock Island, Ill.



Construction samples and literature on request

CrafTop and ShopTop, the latter in a heavy duty thickness, are trade names for a new laminated wood table top. The core is made of kiln dried blocks. Facing on both sides is in resinwood which is made by the company from granulated wood bonded with phenolic resin under pressure and heat. The surfaces are resistant to attack by acids, oils, grease. They are splinter proof and warp free. The material presents a natural light color of wood in a single unbroken surface.

Thickness ranges from 1½ to 2¼ inches. Four standard widths are between 24 and 48 inches. Length is 24 to 96 in. in single units. The top is designed so any number of units can be joined end to end. Special thicknesses and sizes are available to order.

If you write maker identify as IEN - 9894

Polishing - Motor driven head positions universally on a floor stand

Source: HAMMOND MACHINERY BUILDERS INC.
1607 Douglas Ave., Dept. IEN, Kalamazoo, Mich.

For production use

Drive can be specified with a 10 or 15-hp. motor operating at 1,750 rpm., or a 20-hp. 3,500-rpm. unit, in this new Model 52-100 polishing and buffing head. The assembly weighs about 2,500 pounds. It provides maximum "float" of 6 in. and can be supplied with a power feed for vertical lift or horizontal traverse. It can be set up with either right or left hand operation for use with the company's Strait-Line automatic buffing machine or its rotary automatic machine. It serves also as an individual polishing and buffing stand.

If you write maker identify as IEN - 9895

Fittings that lock when they are pushed into place and hose in ¼ to ⅝-in. sizes are available in a new combination of fittings and hose carried in kits in ¼ and ⅜-in. sizes. Each kit includes a supply of fittings and 24 ft. of ¼ and of ⅜-in. hose. The ⅝-in. hose is carried in bulk stock. Hose and fittings are suited for low and medium pressure fuel, air, water and oil lines according to the manufacturer, Aeroquip Corporation, 300 S. East Ave., Dept. IEN, Jackson, Mich.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9896

Now—Lock Your Feed Rates to Protect Machines . . . Reduce Costs with the CROSS Flow Control Lock!

Only authorized personnel carry a key for the Cross Flow Control Lock! They set machine feed rate, then lock it.

Easy to install. Just remove valve nameplate and adjusting lever, reinstall over lock mounting plate.

Available for Vickers ¼" flow control valves and remote control panels.

For full details, write Dept. A49.

- **Eliminates Tampering**
- **Stops Costly Shutdowns**
- **Prevents Tool Abuse and Breakage**
- **Protects Machines Against Overloads**
- **Reduces Maintenance Costs**

Established 1898
THE CROSS CO.
DETROIT 7, MICHIGAN

If you write maker identify as IEN - 9897

TO CLEAN YOUR DIE MOLDS..

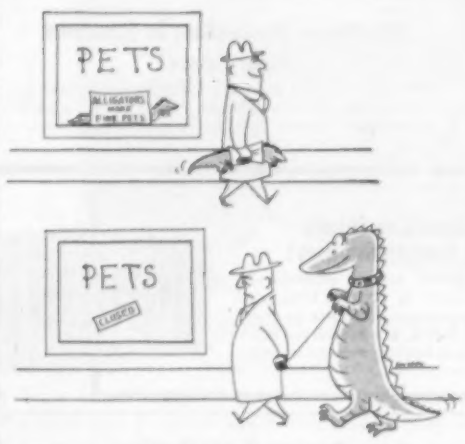
Moisture, oil and foreign matter completely removed from air lines by patented one-piece separator and eliminator chamber.

Does not waste air by continuous venting. Positive, automatic, effective for paint sprays, sand blasting, etc.

R & I E EQUIPMENT DIVISION
I-T-E CIRCUIT BREAKER CO.
GREENSBURG, PENNSYLVANIA

If you write maker identify as IEN - 9898

things to watch for when buying alligators . . .



But if you're buying special purpose STEELS, may we recommend the SPEED STEELS

SPEED CASE a low carbon free machining open hearth steel

SPEED TREAT a medium carbon free machining open hearth steel

SPEED ALLOY a chromium alloy steel

briefly they

- are easy to heat-treat
- are fast machining
- give longer tool life
- produce better finishes

THERE ARE SPEED STEEL SPECIALISTS IN . . .

☐ Akron, Ohio	Burger Iron Co.
☐ Bridgeport, Conn.	Bridgeport Steel Co.
☐ Buffalo, N. Y.	Beals, McCarthy & Rogers
☐ Cambridge (Boston), Mass.	Brown Wales Co.
☐ Chicago, Ill.	W. J. Holliday & Co., Inc.
☐ Dallas, Tex.	Earle M. Jorgensen Co.
☐ Detroit, Mich.	Peninsular Steel Co.
☐ Hammond, Ind.	W. J. Holliday & Co., Inc.
☐ Houston, Tex.	Earle M. Jorgensen Co.
☐ Indianapolis, Ind.	W. J. Holliday & Co., Inc.
☐ Lewistown, Me.	Brown Wales Co.
☐ Los Angeles, Calif.	Earle M. Jorgensen Co.
☐ Memphis, Tenn.	Pidgeon-Thomas Iron Co.
☐ Newark (New York), N.J.	Grammer, Dempsey & Hudson, Inc.
☐ Oakland (San Francisco), Calif.	Earle M. Jorgensen Co.
☐ Philadelphia, Pa.	Horace T. Potts Co.
☐ Toronto, Ontario	Peckover's, Ltd.
☐ Tulsa, Okla.	Earle M. Jorgensen Co.

W. J. Holliday & Co., Inc.
141 141st STREET • HAMMOND, INDIANA

Speed steels are produced by W. J. Holliday & Co., Inc.,
Speed Steel Plate Division

If you write maker identify as IEN-9900

specify...Cabot's

USE **over and over** AGAIN!

Cabot's BRUSH CLEANER

- Cleans hardened brushes thoroughly!
- Won't evaporate! • Non-inflammable!
- Safe for finest bristles!

See for yourself how easy it is to restore your costly paint brushes to useful service.

Samuel Cabot

Write for free sample today.

SAMUEL CABOT INC.
933 Oliver Bldg., Boston 9, Mass.

If you write maker identify as IEN-9901

On his feet all day and feeling fine . . . U. S. Rubber Foot-Ease Matting does it!

Enlarged section (right) shows the ribbed design of U. S. Foot-Ease matting upon which worker is standing.

Standing continuously on hard floor fatigues and slows down *3 out of 4 workers.* Resultant foot trouble costs management hundreds of millions of dollars a year in lost man-hours. United States Rubber Company engineers tackled this problem and developed U. S. Foot-Ease Matting. Made of tough durable rubber compound backed up by springy sponge rubber. U. S. Foot-Ease "cushions" the feet from the floor, relieves strain on leg and foot muscles, eliminates "aching arches."

U. S. Foot-Ease provides *sure footing,* and is available in a special ribbed pattern or a pyramid surface design. It can easily be cut to any desired dimensions from 25-yard rolls of 36-inch widths. Available at any of our selected distributors or call one of our 27 District Sales Offices, or write to address below.

"U.S." Research perfects it
"U.S." Production builds it
U.S. Industry depends on it

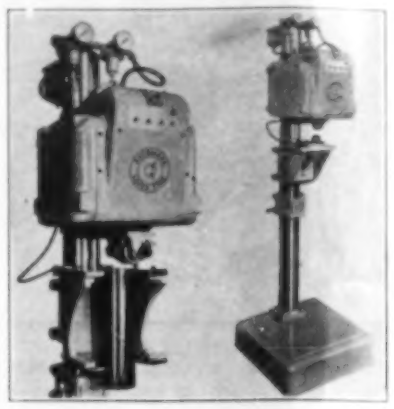
UNITED STATES RUBBER COMPANY

Mechanical Goods Div. • Rockefeller Center, New York 20, N. Y.

If you write maker identify as IEN-9903

Marking - Air operated machine rolls die across work under pressure

Source: DEFIANCE MACHINE & TOOL CO.
1920 S. Vandeventer Ave., Dept. IEN, St. Louis 10, Mo.



Connects to air line

Steel characters are secured in a round holder for flat work surfaces in this new Model RMA-1 Automark machine. Characters are held on a flat holder to be rolled across circular surfaces or those with contours or irregularities. In both cases pressure is applied downward on the holder in an amount that will make a desired impression.

Control is by a hand or foot switch or by fixture actuation. Automatic feed fixtures can be supplied as well as motorized hopper feeds. The machine mounts a table measuring 8 by 10 in. and provides a 7-in. throat measured from the center of the die slide to the column. Maximum height of the die slide to the base is 48½ inches. The marking head and table can both be moved up, down or around the column.

If you write maker identify as IEN-9904

Electric Duct - Rolling trolley for Feedrail "100" trolley busway

Source: FEEDRAIL CORPORATION
125 Barclay St., Dept. IEN, New York 7, N. Y.

Mobile power

Two new trolleys, each rated at 100 amp., have been added to the smaller 60-amp. unit, previously described IEN-7704-54. Each equals the current carrying capacity of the "100" Feedrail track so it is no longer necessary to parallel two or more lighter capacity trolleys to equal the track rating. Both new units are particularly suited for application on overhead traveling cranes, hoists and similar equipment to 60 hp. at 550-volt ac.

Construction includes enclosed ball bearing support wheels, horizontally mounted ball bearing guide wheels and self-lubricating undercarriage wheels to provide alignment in the track. A polarizing tab assures application with correct polarity. A load line connects to solderless type pressure connectors enclosed in the steel terminal box. A cable clamp prevents strain on the terminals. Provision is made for a tow chain or other connection to the equipment being served.

Contact in the track employs three arc-resisting blocks on which the contact brushes are mounted. Silver tungsten contacts, one per pole, are provided with individual compression springs to keep the brushes in continuous contact.

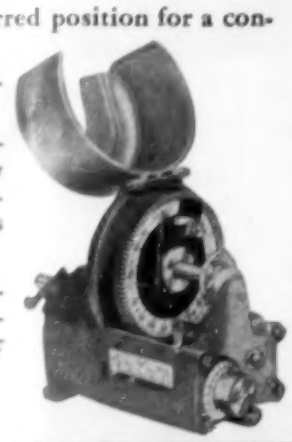
All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-9905

Have you considered this AID for AUTOMATION?

CYCLO-MONITORS:

1. **PRE-SET** over a wide range of numbers. No tools required.
2. **COUNT** shaft revolutions, lever strokes or electric impulses.
3. **TRANSFER** a built-in single pole, double throw control switch.
4. **HOLD** switch in transferred position for a controlled interval.
5. **RETURN** switch to normal position.
6. **REPEAT** automatically—with absolutely no interruption of the counting process. No lost counts or time lag.



CYCLO-MONITORS are available in many forms—including models arranged for your special requirements.

Write for Bulletin 202-1

COUNTER & CONTROL CORPORATION
5231 W. ELECTRIC AVE. • MILWAUKEE 14, WIS.

If you write maker identify as IEN-9906

CUTTING COMPLAINTS

A pinch of dust or grit at your assembly line inspection bench or in the packing and shipping room can cause very expensive service calls later on. Spencer Vacuum is easily piped to each room and bench. It will speed production—save time in general cleaning and with special attachments, can collect water, pick up welding flux, reclaim materials and do 130 other jobs that are too expensive by hand. Ask for Bulletin No. 144.

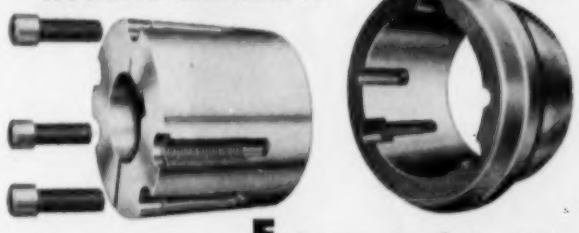
with SPENCER HARTFORD VACUUM

THE SPENCER TURBINE COMPANY • HARTFORD 6, CONNECTICUT
SPENCER HARTFORD
466-H

If you write maker identify as IEN-9907

TAPER-LOCK BUSHINGS WITH WELD-ON HUBS

NOTHING ELSE LIKE IT!

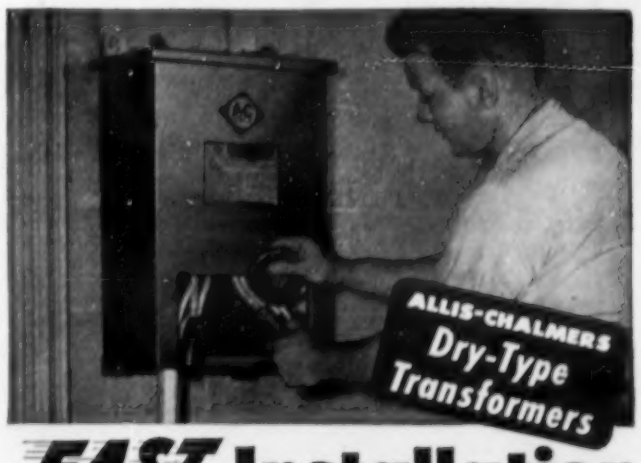


FOR your sprockets, gears, clutches, motors, impellors — for wheels of all kinds where service conditions are *really rugged*—there is nothing like TAPER-LOCK. This famous patented bushing—supplied for your use with matching TAPER-LOCK Weld-on Hub — gives you an easy-mounting, true-running unit that locks to the shaft with firmness equivalent to a shrunk-on fit. *WRITE* for special bulletin A-420A with specifications and entire range of shaft sizes (1/2" to 10").

DODGE MANUFACTURING CORPORATION, 600 Union St., Mishawaka, Ind.

DODGE of Mishawaka, Ind.

If you write maker identify as IEN-9908



FAST Installation

Allis-Chalmers dry-type transformers can be installed fast because there is plenty of room to make connections. On single-phase units 10 kva and below (shown above) and three-phase units 15 kva and below, a removable plate at the bottom front of the case makes it easy to connect system cables.

On larger size units you can remove the top cover for equally fast access to connections. All sizes are light in weight, take little space. Mount them anywhere — no vaults are needed.

Get more information from your nearby A-C authorized distributor or district office. Or write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 61B6382A.

A-4232

ALLIS-CHALMERS

If you write maker identify as IEN-9909

Brown Boggs Foundry & Machine Co., Ltd., Hamilton, Canada, manufacturers of this 200-ton press, required a v-belt that would give vibrationless full power delivery . . . that could be installed quickly and easily. Here's why they selected Veelos:

*"We feel that our own factory assembly has put this Press in the best operating condition. To eliminate the necessity for dismantling any part of the equipment, and for the user's convenience in changing belts, we have equipped the drive with Veelos V-Belting."

Veelos is known as Veelink outside the United States.

VEELOS THE LINE V-BELT

Get the full story of Veelos—write today for your free copy of the Veelos Data Book.

MANHEIM MANUFACTURING & BELTING CO.
651 Manheim St., Manheim, Pa.

Adjustable to Any Length • Adaptable to Any Drive

If you write maker identify as IEN-9910

1st with Underwriters' Listing

CLARK's L.P.-GAS CARLOADER*

1. Greatly reduces engine maintenance:
Eliminates unburned carbon deposits and crankcase dilution.
Eliminates fuel pump and complicated carburetor adjustments.

2. Eliminates obnoxious exhaust fumes:
L.P.-Gas provides almost perfect combustion, excellent for indoor operations.

3. Provides safe, efficient operation:
Vacuum ignition switch is interlocked with fuel line and manifold, impossible to spill fuel or load-up engine. High compression head (8.5 to 1) gives maximum economy and power from high octane L.P. Gas. Quickly demountable tank takes 3 minutes to change. Stellite valves and seats prevent burning from high flame temperature of L.P. Gas.

For details, call your local Clark dealer, listed under "Trucks, Industrial" in the Yellow Pages. Or send the coupon for specifications.

*4000 lb. capacity, available with standard shift, Hydratork or Dynatork

CLARK EQUIPMENT
Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 49, Michigan

☐ Send details on LPG truck

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

For Your Special Information

ALL MAKERS ARE LISTED — IEN S-17

We are approaching the season for expositions. Manufacturers of products applying in given fields, or serving related functions, will put their current products on view in the big exposition halls. We recommend that you select those of interest to you and that you go to see the equipment and materials and services. No other means of judging a possible new facility is as good as your own personal contact with it.

At the same time we remind you of the largest "exposition", on paper, where not only the selected items but all of the things made in these United States are on permanent exhibit in word and picture. That exposition is Thomas' Register of American Manufacturers. For $15, plus handling charges, you can have it right at your desk. For no more effort than turning its pages you can read the names, addresses, ratings of all the makers of every product manufactured. There also you will find thousands of product pictures and descriptive information on every product subject. It is good business to make Thomas' Register your source for information on all "things to do things with".

EXPOSITIONS — IEN S-18

The thirty-sixth National Metal Exposition is to open at the International Amphitheatre in Chicago on November first. It will continue through November fifth. This exposition is known popularly as the Metals Show. It is one of the largest in assembly of industrial equipment, tools, materials, supplies, both new and previously developed. It merits careful planning if you expect to cover it thoroughly.

The twenty-first National Exposition of Power and Mechanical Engineering, better known as the Power Show, will be held in Philadelphia at Convention Hall on the 2nd, 3rd, 4th, 6th and 7th of December. Exhibits will comprise the field of power plant engineering from the cold fuel to the final application of power at the productive machine. Instrumentation will be a feature.

UNITED STATES SAVINGS BONDS — IEN S-19

Purchases of Series E and H savings bonds amounted to $2,516,000,000 during the first six months of this year, according to the Treasury Department. This is 13 per cent more than during the first six months of 1953 and 44 per cent more than the same period in 1952. The Department has set a goal of $5,300,000,000 for all of 1954 and asks your help.

There are several ways in which you can help systematically. One is to join the Payroll Savings Plan in your own company. Another it to instruct your bank to deduct a regular amount each month from your checking or savings account and invest it in the bonds. Both ways are "painless". Those bonds make mighty sweet rustling music as they fall due, with interest, in ten short years.

If you write maker identify as IEN-9912

SURFINDICATOR* HELPS REDUCE MACHINING COSTS

Expensive overfinishing of machined parts can be eliminated with the Brush SURFINDICATOR. This practical shop instrument permits quick measurement of surface roughness. Simple to operate, portable, can save its cost a hundred times over. Write for booklet "Surface Finish Control". Brush Electronics Company, Dept. II-9, 3405 Perkins Avenue, Cleveland 14, Ohio.
*Trade-Mark

BRUSH ELECTRONICS COMPANY
INDUSTRIAL AND RESEARCH INSTRUMENTS
PIEZO-ELECTRIC MATERIALS • ACOUSTIC DEVICES
MAGNETIC RECORDING EQUIPMENT
ULTRASONIC EQUIPMENT
formerly The Brush Development Co. Brush Electronics Company is an operating unit of Clevite Corporation.

If you write maker identify as IEN-9913

★ in wires—cables—bus bars—fuses
measure current quickly

Both AC and DC

COLUMBIA

TONG TEST
• Only Tong Test can measure both AC and DC by snapping tongs around electrical conductor. Readings are taken instantly and accurately without breaking circuit or insulation.
• Interchangeable scale ranges up to 1000 amperes AC or DC.

AMMETER
• Safe, convenient, light weight. Cannot burn out as there are no windings.
• Voltage readings up to 600 volts AC or DC with the Voltor attachment.
• Five types to accommodate cables up to 3⅞", bus bars up to 4½" x ½".

Write for Tong Test Bulletin IQ-400
COLUMBIA ELECTRIC MFG. CO. 4519 HAMILTON AVE. CLEVELAND 14, OHIO

If you write maker identify as IEN-9914

More Than 150,000 Satisfied Users of General
EXTRA HEAVY-DUTY MACHINES
COMMERCIAL VACUUM CLEANERS
No Matter What Your Floor Problem GENERAL Guarantees Complete Satisfaction!

Model K-16

All GENERALS are heavy-duty machines. Quiet, easy operation—perfectly balanced! Wax! Polish! Buff! Dry Clean! Refinish! Sand! Scrub! Shampoo Rugs! Use everywhere—on wood, asphalt, tile, marble, rubber, linoleum, cork, terrazzo.

Rug shampooing attachment available on models 14, 16, 18.

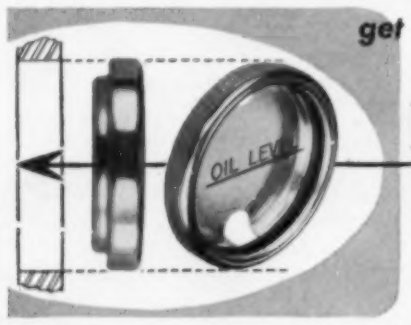
Model 66

GENERAL COMMERCIAL VACUUM CLEANERS give more of everything! . . . 1¼ horsepower, 70" Water Lift, Air Volume, Speed, Economy, 1-2-3 Ease on Dry and Wet Pick-up. Powered by the perfect By-Pass Motor. Tested and approved. With World's Fastest Hose Attaching!

• Regardless of your floor problem, there's an engineered GENERAL to "fit the job." Write for proof and Folder IE.

General FLOORCRAFT, INC. 421 HUDSON STREET, NEW YORK 14, N. Y.
Established 1920—World's Only Mfr. of Complete Line of Floor Machines

If you write maker identify as IEN-9915



get the inside story with BIJUR WINDOW UNITS
Economical in lots of 1000 or more.

They give maximum visibility for observing liquid level, gas activity or internal moving parts of machines.

The construction of these window units consists of a one piece chromium plated shell holding a clear, hard, unbreakable plastic window with a permanent oil-proof gasket.

Quick, easy, low-cost installation – press-fits tightly into reamed hole giving flush-mounting that preserves the clean lines of a machine – No tapping, loose parts, screws, gaskets or extra assembly operations.

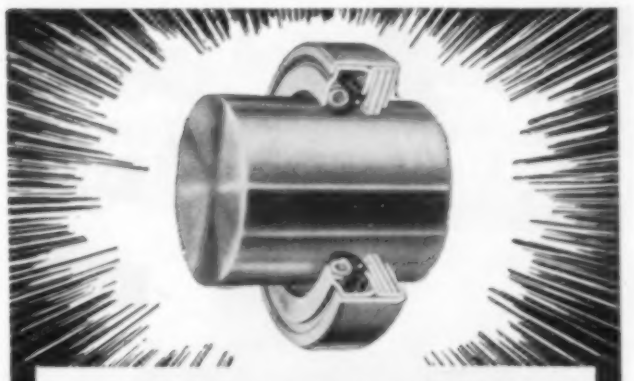
AVAILABLE IN FOUR SIZES AND THREE TYPES
⅝", 1", 1-¼" and 1-¾".

STANDARD — With reflecting background providing high visibility of liquid level.
LEVEL — Same as standard with a black "Oil level" line inscribed to indicate required liquid level.
OPEN — Affords clear view of internal moving parts, flow of liquids or gases, or indicating dials.

Write for Bulletin 4D

BIJUR LUBRICATING CORPORATION
Rochelle Park, New Jersey
Pioneers in Automatic Lubrication

If you write maker identify as IEN - 9916



AMERICAN FELT REALLY SEALS!

Above is an OilFoil seal, consisting of two layers of felt, bonded with two septums of Hycar, the synthetic rubber-like substance that is impervious to and unaffected by oils, greases, and the hydrocarbons used in hydraulic systems. Such washers can have one, two, or three septums, to keep lubricants in and seal out water, dirt, gases and retain pressures. If there is no lubricant in the enclosure, the felt can be impregnated with oil or grease, to provide lifetime bearing lubrication. OilFoil seals are supplied cut to exact dimensions, ready for assembly, and usually require no attention between major overhauls. For more information, write for Data Sheet No. 11, "Felt Seals, Their Design and Application." Free.

Oil Foil T. M. Reg.

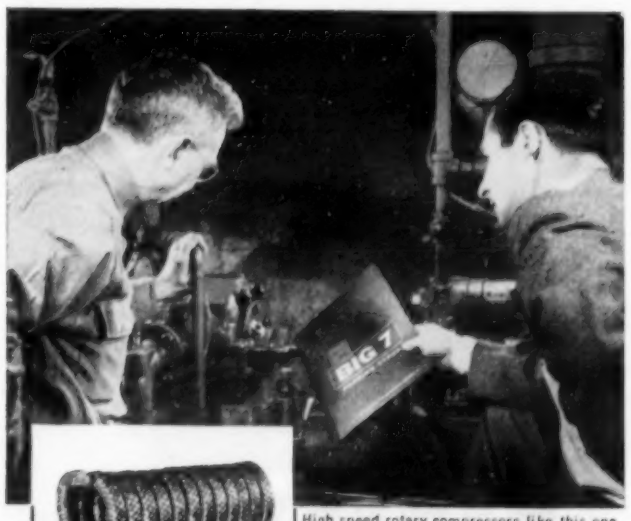
American Felt Company

TRADE MARK

18 GLENVILLE ROAD, GLENVILLE, CONN.

If you write maker identify as IEN - 9917

R/M's BIG 7 Packing Types meet 95% of all packing needs



TYPE 3

High speed rotary compressors like this one which supplies pneumatic tools with 230 cubic feet of actual free air per minute—compressing it from atmosphere to 100 lbs. gage—give top performance with R/M Packing No. 920, a packing included in Type 3 of R/M's Big 7 Packing Types.

With R/M you can practice P/M

By R/M we mean R/M packings. And by P/M we mean preventive maintenance. Hundreds of plants have already put an end to costly corrective maintenance by standardizing on R/M's Big 7 Packing Types. You can too. For this basic line of just seven field-tested packings (you probably need only three or four) is engineered to give custom-built performance in all but the very rarest applications. You can count on them to lower your inventories, reduce your downtime, cut your maintenance costs, and simplify your ordering. For details, call in your R/M distributor.

R/M packings for maintenance purposes are sold only through authorized R/M distributors

R/M BIG 7 PACKINGS

RAYBESTOS-MANHATTAN, INC.
PACKING DIVISION, MANHEIM, PA.

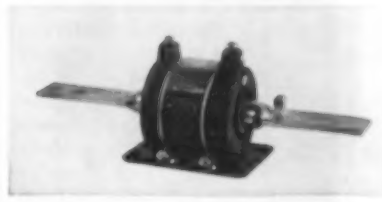
FACTORIES: Bridgeport, Conn.; Manheim, Pa.; No. Charleston, S.C.; Passaic, N.J.; Neenah, Wis.; Crawfordsville, Ind.; Peterborough, Ontario, Canada.

RAYBESTOS-MANHATTAN, INC., Packings • Asbestos Textiles • Industrial Rubber, Engineered Plastic, and Sintered Metal Products • Abrasive and Diamond Wheels Rubber Covered Equipment • Brake Linings • Brake Blocks • Clutch Facings • Fan Belts • Radiator Hose • Bowling Balls

If you write maker identify as IEN - 9919

Transformer - For instruments on circuits rating 600 volts or less

Source: GENERAL ELECTRIC CO.
Dept. 6X-201, Schenectady 5, N. Y.



For continuous duty

Two current ratings are available, in both window and bar primary designs, in this new butyl-molded miniature current transformer. These ratings are 200 and 400 to 5 amperes. They are obtained by passing the line conductor once through the window type unit. The bar type design, shown in the illustration, connects directly into the primary conductor.

The molded butyl serves as insulation, support and casing. It is resistant to oxidation, arc tracking and moisture. Mounting can be in any position, indoors or outside. Weights of the two designs are 2¼ to 2½ lb. for the window type and 3½ to 5 lb. for the bar primary type.

If you write maker identify as IEN - 9920

Gage - Dial micrometer to measure glass thickness in bottles

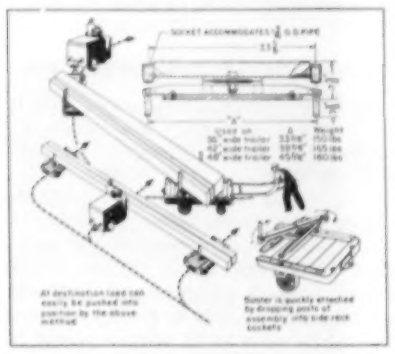
Source: B. C. AMES COMPANY
Dept. IEN, Waltham 54, Mass.

Reads to 0.001 inch

New design of the company's No. 25G Pocket Thickness Measure is now available to measure the glass thickness in bottles. The gage employs a special shape of throat and a fixed anvil with a $\frac{1}{32}$-in. radius. The unit can be inserted to a throat depth of ⅝ inch. Thickness capacity is to $\frac{1}{16}$ inch. Wall thickness is checked after a sample bottle has been cut in half, as shown in the illustration.

If you write maker identify as IEN - 9921

A swivel bolster assembly has been developed by Mercury Mfg. Company, 4044 So. Halsted St., Dept. IEN, Chicago 9, Ill., to handle loads that are too long for a single trailer. Two identical assemblies are mounted on caster steer trailers by inserting posts into the standard side stake pockets. The load is supported on the bolster assemblies and handled as shown in the illustration with travel indicated.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9922

NOELTING

Faultless ENGINEERED TRUCK CASTERS

CUT HANDLING COSTS

3300 Series Double Ball Bearing Swivel Plate Caster with Rubber Tired Wheel

NEW!

MAN-SAVER AND EXPEDITER for INDUSTRY

Here's the answer to your need for *extra* mobility . . . *extra* load capacity . . . *extra* output from less manpower. It's the ideal caster for quickly and quietly moving trucks or other mobile equipment and there's a clear profit from the *extra* mileage they give. Ask your supplier for Series 3300.

- **Jumbo Swivel**—large diameter ball races. Two full rows of balls rolling around hardened raceways formed in heavy steel plates.
- **Husky Horn**—heavy gauge steel sides and top plate riveted into single unit of surplus strength.
- **Oversize King-Pin**—machined to precision fit.

FAULTLESS CASTER CORPORATION
Dept. IE, Evansville 7, Indiana
Branches in Principal Cities—Canada Factory: Stratford, Ont.

If you write maker identify as IEN - 9923

QUESTIONS on plastic sheet? Kodak has ANSWERS!

REVISED EDITION!

FACTS ABOUT KODAK'S FAMOUS CELLULOSIC SHEET

Write for your copy today

IF you use, plan to use, or merely want to know more about plastic sheet, this data book belongs first on your desk, then in your files for reference.

Facts and figures about Kodapak Sheet—cellulose acetate, cellulose acetate butyrate, and cellulose triacetate. Includes full information on types, gauges, colors, finishes, and general properties—moisture, permanence, mechanical, optical, thermal, chemical, and electrical—all presented in easy-to-read form.

"Properties of Kodapak Sheet" is a helpful aid for engineers, designers, manufacturers, and converters.

Makes Good Products Better

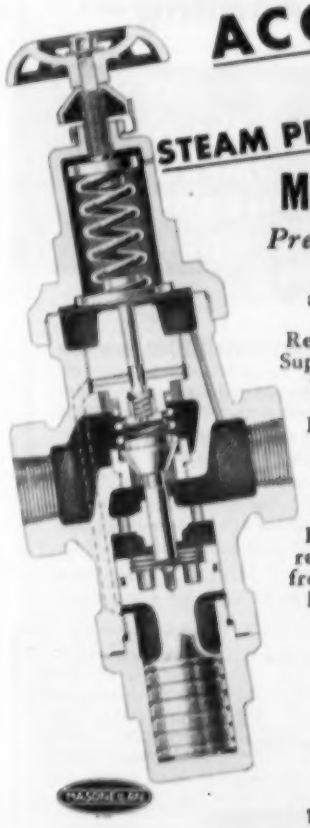
Kodapak Sheet

"Kodapak" is a trade-mark.

A PRODUCT OF EASTMAN KODAK COMPANY, ROCHESTER 4, N. Y.

If you write maker identify as IEN - 9924

TOPS FOR ACCURACY IN STEAM PRESSURE CONTROL



Masoneilan No. 11

Pressure Reducing Valve

Users tell us this is the most accurate, dependable reducing valve they've ever installed. Responds to slightest variations. Superfinished stainless steel pilot valve, housing, and main valve prevent sticking or corrosion. Easy to service — all parts may be removed with the valve in the line. Maintenance consists of *little more than keeping the moving parts clean.*

Initial pressures up to 250 lbs. reduced to any desired pressure from 10 to 90 lbs., or 75 to 225 lbs. Sizes ½" to 2" with bronze body. (Also available in iron and steel.)

Call your local Mason-Neilan Industrial Distributor for fast, dependable service.

MASON-NEILAN REGULATOR CO.
1188 Adams St., Boston 24, Mass.

If you write maker identify as IEN - 9925

"AMF De Walt saves us 80% on maintenance time and labor!"

says Marty Kule, Lezius-Hiles Printing Company, Cleveland, Ohio

"A typical job AMF De Walt® did for us was cutting and drilling lumber for 20 stock trucks. All the 1¼" pieces of lumber for one truck were cut and drilled in 1½ hours. Without AMF De Walt, the job used to take 8 hours. What's more, each came out accurate, alike, and required no finishing. The savings on this job alone half paid for our AMF De Walt!"

Versatile, economical, does all jobs. Fast, safe, accurate, compact. Prices start at $229 for ½ H.P. model. Send for catalog to De Walt Inc., Dept. IEN-54-9, Lancaster, Pa.

De Walt Inc. Lancaster, Pa.

DE WALT

POWER SAWS

In Canada: De Walt Canada Ltd., Guelph, Ontario

Subsidiary of AMERICAN MACHINE & FOUNDRY COMPANY, New York

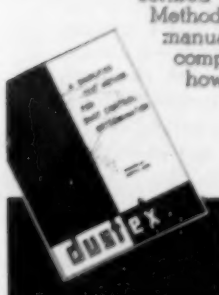
If you write maker identify as IEN - 9926

IMPRACTICAL!

. . . so is guessing about your dust problems!

Actually, there is no need to guess about the scope of your dust problem or collection equipment needed for effective control. The most practical way to arrive at the solution to all dust problems is to apply the simple test method described in a new booklet, "A Simplified Test Method for Dust Control Determination." This manual gives you the facts on how to get a complete analysis of dust conditions and how to be sure of effective control.

For your copy, just clip this ad to your company letterhead and sign your name and title.



dustex CORP.
1764 Walden Avenue
Buffalo 25, N. Y.

If you write maker identify as IEN - 9927

Drill Hardened Steels without Annealing –

With the new, improved "HARDSTEEL" Drill, you can do accurate, smooth drilling, countersinking, counterboring and reaming in steels hardened by any process without first annealing the work. And they work with equal ease on work-hardening steels and high carbon–high chrome steels of any degree of hardness.

"HARDSTEEL" Drills fit standard drill presses. They save time and reduce rejects. They permit engineering changes requiring additional drilling after hardening. And parts drilled after hardening always match at assembly.

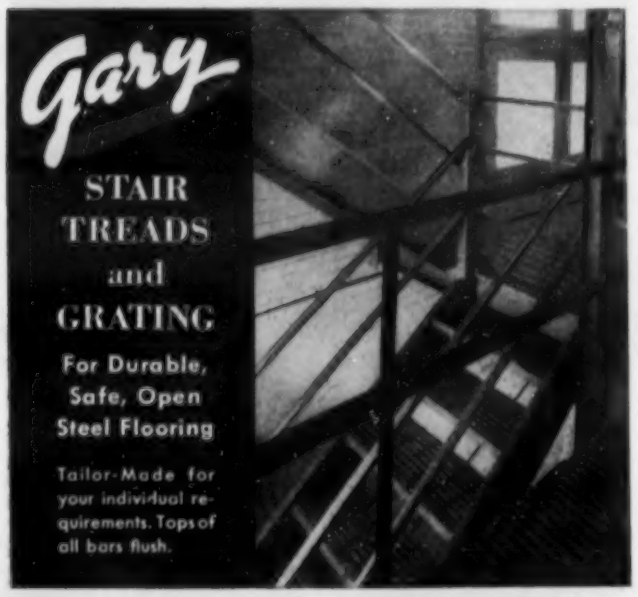
Write for a copy of the "HARDSTEEL" Operators Manual showing how "HARDSTEEL" drills are cutting costs in thousands of plants.

You Harden It—We'll Drill It—With "HARDSTEEL"

BLACK DRILL COMPANY, INC.
1378 East 222nd St. • Cleveland 17, Ohio

Also makers of— BLACK DRILLING UNITS—AUTOMATIC, SELF-CONTAINED—FOR COST-CUTTING PRODUCTION ON ALL MATERIALS
Write for information

If you write maker identify as IEN - 9928



Make your open steel flooring safe, long-lasting, economical and better looking with Gary. Save time and expense by installing Gary factory-fabricated products.

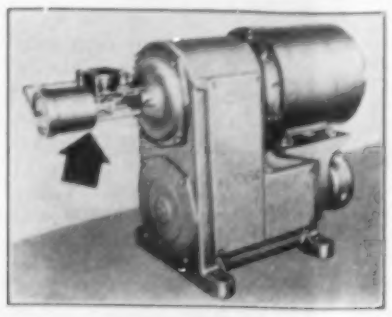
FREE SAMPLE
Write on your company stationery, giving title, for paper weight size sample.
Catalog IN-94

Standard Steel Spring Division
ROCKWELL SPRING AND AXLE CO.
4045 East Seventh Avenue • Gary, Indiana

If you write maker identify as IEN - 9929

Drive - Variable speed unit with speed controlled by air pressure

Source: REEVES PULLEY CO.
800 N. Wilson St., Dept. IEN, Columbus, Ind.



Bulletin M-542

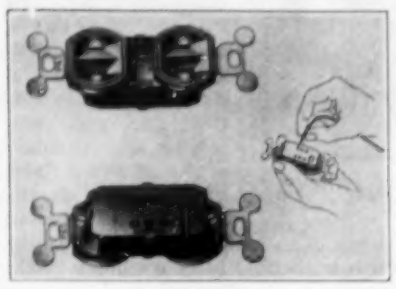
Auto-Pneumatic is a new air operated speed control for application on the speed shifting mechanism of the Vari-Speed Motodrive. It is actuated by air pressure from the output side of pneumatic process control instruments to provide a pressure range between 3 and 15 pounds. This pressure acts upon the speed change mechanism to continually correct the output speed for any changes in process variable such as temperature, liquid level, pressure, temperature, flow, color, velocity.

On drives rating 15 hp., or more, the new control is mounted at the side of the drive rather than at the end as it is shown in the illustration.

If you write maker identify as IEN - 9930

Connector - Duplex receptacle with screwless spring held wire grips

Source: PASS & SEYMOUR INC.
1307 Milton Ave., Dept. IEN, Syracuse 9, N. Y.



About $30

Wires that connect to the rear of this new receptacle are stripped according to the gage on the back face and then are thrust into their respective openings. There they are gripped by springs that hold them securely until a nail is thrust into the center hole to release them. The receptacle employs bronze contacts. The back is insulated. The unit is available in brown and ivory colors. It is known as Type 1500.

If you write maker identify as IEN - 9931

Roveloth trade names a new woven glass roving fabric that is among the strongest and most easily wet-out of the plastic reinforcing materials. The fabric is being manufactured by Bigelow Fiber Glass Products, 140 Madison Ave., Dept. IEN, New York 16, N. Y., on new equipment capable of weaving to 144 in. in width. The new material can be woven from roving in an unlimited number of constructions as to end count and thread count. It is available in various finish sizings, such as Volan, Silane, both of which impart stiffness safely, since the fibers are laid side by side in roving and are not twisted as in yarn. The fabric sells at 70 cents a pound in quantities of 2,000 lb. and over and for 75 cents a pound for less than 2,000 pounds. A sample is available on request.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9932

Moving packaged drugs from floor to floor on Ferguson roller and belt conveyors.

MAKE YOUR MOVES ON

Ferguson Conveyors

You have parts, products, packages to move . . . from floor to floor . . . department to department . . . one end of a line to another. What's the best way to do these jobs? On Ferguson Conveyors. They're custom engineered to fit the need . . . to save handling . . . to speed assembly, packaging, shipping. Every day, users in all types of industries everywhere get more efficient materials handling at lower operating costs with Ferguson Conveyors.

Write, wire or call us today with your materials handling problem and for facts and figures on Ferguson belt, roller and wheel conveyors.

HARRY J. ferguson COMPANY
125 WEST AVE., JENKINTOWN, PA.
• OGontz 4401

If you write maker identify as IEN - 9933

THE ~~BEST~~ SAFELY DRESSED MEN WEAR

SURETY SURESEAL

For neck-to-knees protection against virtually all types of industrial chemicals, you can't beat this ensemble of Surety Patented Turn-Cuff Gloves, Sleeves and Aprons—designed for comfortable fit, freedom of action and maximum protection. In Surety Sureseal (the only gloves made with HYCAR OR15, the super Buna N), the synthetic with highest resistance to the most chemicals, they're tough, snag and abrasion resistant, slow aging for long, low-cost service. Write for informative catalog.

In Canada, Safety Supply Co., Toronto

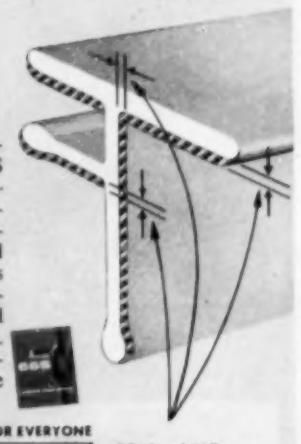
THE SURETY RUBBER CO.
Carrollton, Ohio

If you write maker identify as IEN - 9934

New Harvey aluminum alloy 66S will reduce your costs

high-strength-low-cost-ratio

66S saves money by combining the high strength of 24S and the good corrosion resistance, weldability and economy of 61S. This new aluminum alloy cuts material and fabricating costs and reduces product weight. Tooling service charges are nominal and Harvey prepays the freight. Study the cost-saving advantages of Harvey 66S. Write for your Bulletin on 66S.



Made of 61S, extrusion above requires the full cross section. Using 66S saves material in shaded area, reduces costs 21%.

MAKING THE MOST OF ALUMINUM . . . FOR EVERYONE

HARVEY Aluminum

HARVEY ALUMINUM SALES, INC.
TORRANCE—LOS ANGELES, CALIFORNIA
BRANCH OFFICES IN PRINCIPAL CITIES

If you write maker identify as IEN - 9935

Smokey says:

PREVENT GAS and OIL FIRES ALWAYS USE SAFETY CANS

HERE'S THE *Safe* WAY TO HANDLE FLAMMABLE LIQUIDS

EAGLE SAFETY CANS

Listed and Labeled by UNDERWRITERS' LABORATORIES, INC.
Approved by FACTORY MUTUAL

An EAGLE 60th Anniversary Can

PROTECT PLANT AND PERSONNEL
MINIMIZE FIRE HAZARD

Eagle Safety Cans are specially designed and built under rigid specifications to meet all safety regulations for handling, transporting and storing flammable liquids in every industry.

Exclusive Eagle features include:

Protecting Guard Cap that seals tighter if can is upset; Combination Free-Swing Carry and Operating Handle; Cam-Acting Connecting Arm for easy pouring; Body and breast electrically welded together under electronic control.

Eagle Safety Can features provide extra convenience, safety, efficiency, economy and long service.

BE SAFETY WISE!

Order TODAY from your nearest EAGLE Distributor

EAGLE MANUFACTURING COMPANY
Wellsburg, W. Va.
60 YEARS OF SERVING THE TRADE

If you write maker identify as IEN - 9936

STOW flexible shaft machines

your best buy because they serve your customers better

Versatile . . . choice of operating speeds . . . specially designed to provide *highest efficiency!* Constant speed and other variable speed models also available.

For over 75 years, STOW FLEXIBLE SHAFT MACHINES have been famous for long trouble-free performance.

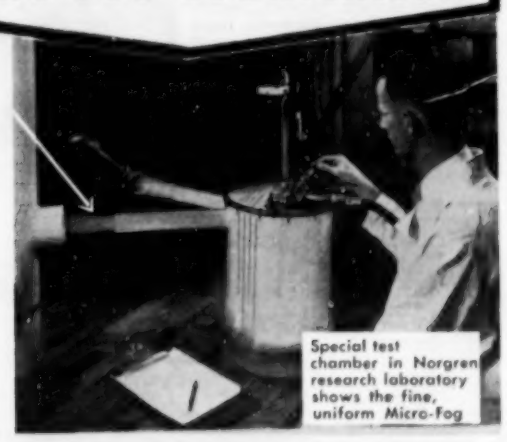
STOW

Don't delay—write *today* for your free copy of CATALOG #51.

STOW MANUFACTURING CO. 25 Shear St., Binghamton, N.Y.

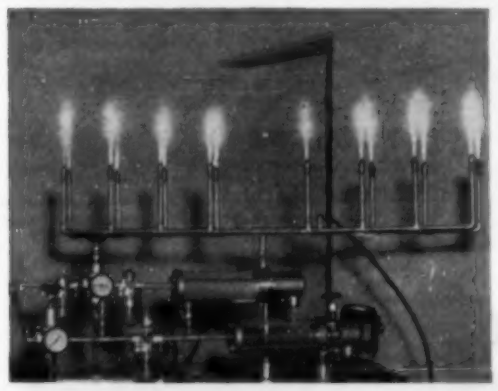
If you write maker identify as IEN - 9937

this is *Norgren* MICRO-FOG LUBRICATION



Special test chamber in Norgren research laboratory shows the fine, uniform Micro-Fog

and this is what it can do for you



MICRO-FOG assures complete lubrication after *traveling through more than* **130** *ft. of hose*—assures equal distribution of lubricant *through as many as* **40** *outlets.*

WRITE, NOW, FOR COMPLETE INFORMATION ON HOW NORGREN MICRO-FOG LUBRICATION CAN HELP YOU...

- **CUT LUBRICATION AND MAINTENANCE COSTS.**
- **IMPROVE EQUIPMENT PERFORMANCE.**

C. A. Norgren CO.
3432 So. Elati, Englewood, Colo.

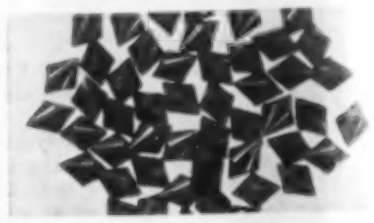
PIONEER AND LEADER IN OIL FOG LUBRICATION FOR 26 YEARS

VALVES • FILTERS
LUBRICATORS • REGULATORS • HOSE ASSEMBLIES

If you write maker identify as IEN - 9939

Tumbling - Finishing media for burring and polishing fragile work

Source: RAMPE MFG. COMPANY
3320 St. Clair Ave., Dept. IEN, Cleveland 14, Ohio



For gentle action

Nylaslugs trade names a new molded nylon tumbling media, for use in a barrel, to remove burrs and polish parts such as molded plastics, small parts made of zinc, brass or aluminum, jewelry. The new media are employed with an abrasive of suitable roughness and then, after rinsing, the same media are used with a polishing cream. Final operation is tumbling in clean hardwood sawdust. Various shapes and sizes of the media are available.

If you write maker identify as IEN - 9940

Corrosion Proofing - Chemical produces protective vapor for metal

Source: SHELL OIL CO.
50 W. 50th St., Dept. IEN, New York 20, N. Y.

Technical data upon request

Type VPI-250 is a new formulation of the volatile corrosion inhibitor, based on amine nitrite, previously described IEN-12243-51. The new material is available in the form of a white powder about as fine as talcum. It can be applied with a squeeze bottle, a salt shaker or similar device. It also can be dissolved in alcohol and applied in solution. Portions of the new material volatilize rapidly to prevent corrosion as soon as application has been made. The remainder evaporates more slowly to protect over an extended interval.

A quantity of the powder can be introduced into an enclosed space and its vapors will penetrate around any metal products or other objects enclosed in that space. Only small quantities are required for protection in shipment and in storage and no cleaning is needed before the protected metal parts or products are put into service.

If you write maker identify as IEN - 9941

Cleaning - Vacuum machine employs compressed air from shop line

Source: M-M-A INCORPORATED
53 N. Duke St., Dept. IEN, Frederick, Md.

No moving parts

Compressed air passes through a trigger operated valve in the head of this recently improved cleaning machine where it establishes vacuum to draw in dirt and dust laden air at the nozzle and deliver it into a collector bag. The machine will pick up lint, waste, air, filings, lathe cuttings. It will operate wet as well as dry and can empty a 50-gal. drum of water in about a minute. Weight is about 1½ pounds.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

WIDE ACCEPTANCE proves their merit

Purchasing and production heads like to do business with industrial distributor representatives who have "what it takes." And that, first of all, is GOOD PRODUCTS with WIDE ACCEPTANCE.

There is no better example than Nicholson or Black Diamond files. Through four generations of steadfast quality manufacture, Nicholson has gained world-wide recognition of these outstanding brands.

The variety of file types, cuts and sizes is designed for meeting the growing file requirements of modern production methods, shop practices and metals. Nicholson and Black Diamond files are meticulously made to remove the most metal in the shortest time. They provide the means to save workmen's time and bring filing costs down to an irreducible minimum.

With top user acceptance supporting Nicholson and Black Diamond, why not put all your filing needs in the hands of your nearest Nicholson industrial distributor?

NICHOLSON FILE CO., 33 Acorn St. Providence 1, R. I.
(In Canada: Nicholson File Company of Canada Ltd., Port Hope, Ontario)

NICHOLSON FILES
FOR EVERY PURPOSE

If you write maker identify as IEN - 9943

WEIGHS 28 LB LIFTS 1,000!

300, 1,000, and 2,000 lb capacities

KELLER AIR HOISTS

LIGHTWEIGHT, portable, easy to hang and to service

POSITIVE DISPLACEMENT motor with infinite speed variation up to 17 feet per minute

LOW MAINTENANCE. Overloading, continuous duty, or rapid reversals cannot burn out motor

WRITE FOR CATALOG 86

KELLER TOOL CO. 1329 FULTON STREET GRAND HAVEN, MICH.

If you write maker identify as IEN - 9944

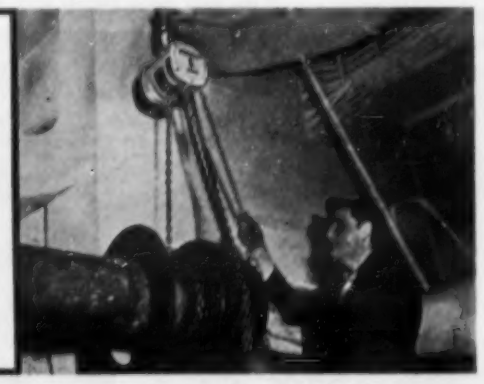
This Building is now "Of Age"

Twenty-one years ago, this Armco Steel Building was first erected on another industrial site. In 1937, it was completely dismantled and re-erected at this present location. There was no loss of material. Maintenance costs? An occasional coat of paint. And it will continue to give excellent service for many more years.

Armco Steel Buildings work well in many industrial applications — warehouses, shops, tool sheds, offices and garages. Erection is easy, fast and economical. Wide range of sizes helps you meet any floor space requirement. Write us for specific recommendations on your building problems.

ARMCO DRAINAGE & METAL PRODUCTS, INC.
2034 Curtis Street • Middletown, Ohio

If you write maker identify as IEN - 9945



SAVES AS IT LIFTS

It's the 'Budgit' Aluminum Chain Block, the one-man hoist that's light, easy to carry, hang up and use anywhere for spot-lifting. The ¼-ton size weighs only 29 lbs., yet the full load can be lifted smoothly with a hand chain pull of only 25 lbs.

The 'Budgit' Aluminum Chain Block is tough — gives economical, long-life performance in everyday service. Spur-geared efficiency speeds lifting, and the big automatic load brake and over-capacity hooks and heat-treated load chain completely safeguard man, load, and hoist. Capacities: ¼, ½, 1 and 2 tons. Ask your "Shaw-Box" Distributor for detailed information or write for Bulletin 398.

'Budgit' CHAIN BLOCKS

MANNING, MAXWELL & MOORE, INC.
Muskegon, Michigan

Builders of "Shaw-Box" and 'Load Lifter' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' Industrial Instruments, and Aircraft Products.

If you write maker identify as IEN - 9946

Material flow problems are our business. PneuBin is designed to aid in the evacuation of your bins through the principle of "positive displacement." We move the bin contents . . . not the bin.

The PneuBin unit consists of a steel-backed neoprene panel, mounted on the inside wall of your bin. By the pneumatic inflation and deflation of the panel, the bin contents are displaced and disturbed to activation. After the diaphragm has deflated, the air control unit (operating off the regular plant air supply) starts another cycle of inflation and deflation. The process continues automatically at whatever frequency is set on the air controller.

Because the neoprene panel is resistant to oils and most chemicals and is also thick and tough enough to withstand severe abrasive service, PneuBin is applicable to most any bin flow problem.

Send for "Flow Stoppage Report" and free literature. PneuBin engineers will gladly make recommendations, with no obligations on your part.

PneuBin is a product of
GEROTOR MAY CORP. • BALTIMORE 3, MD.

Pneu Bin

Manufacturers of **GEROTOR**
HYDRAULIC PUMPS & MOTORS

If you write maker identify as IEN - 9947

RAPID ASPHALT PAINT

Spray or Brush—Dries Quickly Protects Any Surface

A quick-drying, glossy black coating. Provides a hard, tough, long-wearing surface. High insulating and moisture-proof qualities. A "must" for equipment that is constantly exposed to acid fumes or dampness. In six sizes from one pint cans to 55 gallon barrels. For metal, wood, masonry, coated fabrics, etc. For literature, write The Ruberoid Co., 500 Fifth Ave., New York 36, N. Y.

The RUBEROID Co.
Asphalt and Asbestos Building Materials

If you write maker identify as IEN - 9948

How can YOU use *Aero-Seal* HOSE CLAMPS?

• AERO-SEALS — the finest hose clamps made, were designed for aviation and automotive use. Precision worm gear drive tightens evenly without damaging hose or material, stays locked with a never-let-go grip. Stainless steel bands resist corrosion. Application and removal takes mere seconds. Re-usable over and over.

Design engineers, production and maintenance men find AERO-SEALS perfect for many special uses. Your product or plant can use them, too. Available in the widest possible range of sizes. Write for details.

Aero-Seal
PRECISION WORM DRIVE
HOSE CLAMPS

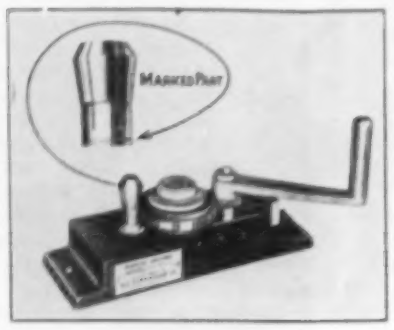
ANOTHER BREEZE MARK PRODUCT

BREEZE CORPORATIONS, INC. 700 Liberty Ave., Union, N. J.

If you write maker identify as IEN - 9949

Marking - Hand operated machine rolls impression into cylindrical work

Source: M. E. CUNNINGHAM COMPANY
1039 Chateau St., Dept. IEN, Pittsburgh 33, Pa.



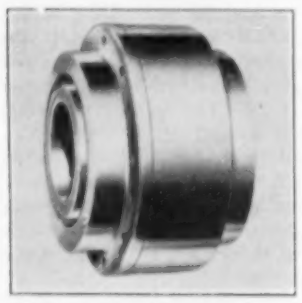
As specified

Model GRD-950-1 is a new marking machine to bolt on a bench. A hand crank with an integral pinion meshes with teeth on a portion of the outer circumference of the marking head. This head can be made with either solid or insert type. The work mounts on an arbor beside the head so the characters will be impressed into it when the hand crank is turned. Rotating parts ride on needle roller bearings. A screw is provided to set the depth of impression. Set screws lock it.

If you write maker identify as IEN - 9950

Drive - Over-running clutch, also for indexing and back stopping

Source: FORMSPRAG COMPANY
23601 Hoover Road, Dept. IEN, Van Dyke, Mich.



Bulletin 201

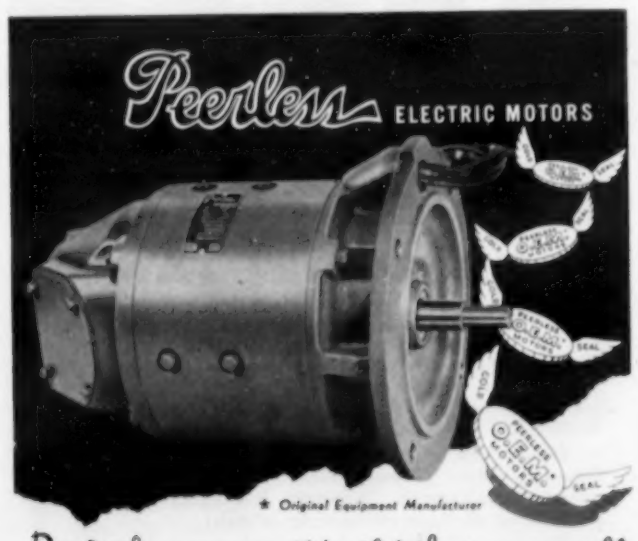
Four new sizes have been added to the company's line of over-running clutches. The smallest of the new units takes a maximum bore of 6 inches. The largest takes 12 inches. Overall length is 7 to 13 in. and overall diameter is 14½ to 30½ inches. The smallest unit, Model FS-1100, rates 18,500 ft. lb. of torque and has a maximum over-running speed of 225 rpm. The 12-in. unit rates 136,500 ft. lb. and has a maximum over-running speed of 100 rpm. The clutch is mounted on ball bearings. It provides instantaneous engagement.

If you write maker identify as IEN - 9951

You can go to Cleveland Crane & Engineering Co., 1137 E. 283rd St., Dept. IEN, Wickliffe, Ohio, if you want a big crane for any handling purpose. The one shown in progress of construction in the illustration measures 141 ft. in overall length and employs two bridge girders of welded construction that weigh 33 ton each. The crane has a capacity of 10 ton and is double leg gantry design. It will be equipped with a magnet and used to handle pig iron in a steel mill.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9952



Built the way you'd build them yourself

If you had the facilities, you'd build your own motors, and you'd build them exactly the way you want them.

Well, that's exactly the way Peerless builds motors . . .

With your design engineers, we start with the product and its functions . . . analyzing your needs as your engineers see them . . . adding our own knowledge of motor designs and applications. Together, we boil everything down to the one motor that will serve you best. Then, we match our production schedule to yours.

You'll want more information about having Peerless work on your motor problems. It's easy to get. Just pick up the phone and call—ask for me if you wish. You can have the motors you want—Peerless Gold Seal Motors—built the way you'd build them yourself.

Robert Gamble
President

THE PEERLESS ELECTRIC CO. • WEST MARKET ST., WARREN, OHIO
MOTORS FAN'S BLOWERS

If you write maker identify as IEN - 9953

Helpful 56 page book FREE

if you use saws send for this book

This free book is based on facts and experience from many years' use of Foley precision saw filing equipment in thousands of plants. It contains pictures and helpful data showing how firms have actually increased sawing production 25% to 40%, lengthened saw life, reduced breakage, produced better work, and have lowered maintenance costs (one firm reports an annual saving of $350). Book includes instructions illustrating how automatic sharpening can benefit you. Request Manual No. 100—no obligation.

FOLEY MANUFACTURING CO. • 3369 N.E. 5th St., Minneapolis 18, Minn.

If you write maker identify as IEN - 9954

NEW SEALER HOLDS THEM!

Prevents Leaks . . . Protects Surfaces

This newly-developed polyhydroxylated plastic sealer adheres to any surface. Does not become hard or brittle. Holds at joints under 2,000 lbs. pressure. Use as a protective coating or as a pipe joint compound. Holds these chemicals and many others:

Dries but doesn't harden. Stays flexible.

- → VARSOL, DRIP OIL, CARBON TETRACHLORIDE
- → TRICHLORETHANE, CHLOROBENZENE, ETHYLENE DICHLORIDE
- → TRICHLORETHYLENE, TRICHLOROBENZENE, BENZENE
- → XYLENE, BUTANE, PROPANE
- → HEXANE, PETROLEUM NAPTHA, SILICONE OILS
- → PETROLEUM OIL, TOLUOL, GLYCERINE
- → SULPHUR DIOXIDE
- → WATER, "FREON", METHYLENE CHLORIDE
- → METHYL CHLORIDE, PERCHLOROETHYLENE, ORTHO-DICHLOROBENZENE
- → CUMENE, CYMENE, GASOLINE
- → JET ENGINE FUELS, FORMALDEHYDE, VEGETABLE OILS
- → KEROSENE, COAL TAR CHEMICALS, PAINT SOLVENTS
- → MOST NON-POLAR SOLVENTS, CHLORINATED SOLVENTS, AROMATIC SOLVENTS
- → AMMONIA

Leak Lock

Comes in 1½ oz. tubes (dozens), pint cans and 10 lb. cans. Order from your supply house. Highside Chemicals Co., 10 Colfax Ave., Clifton, N.J.

1. USE AS A PIPE JOINT COMPOUND . . . .
2. USE AS A PROTECTIVE COATING . . . . .

If you write maker identify as IEN - 9955

SAVE with low-cost SPACER TUBES

sleeves • bushings ferrules

SAVE MATERIALS, LABOR, TIME

CATALOG PRICE LIST *FREE!*

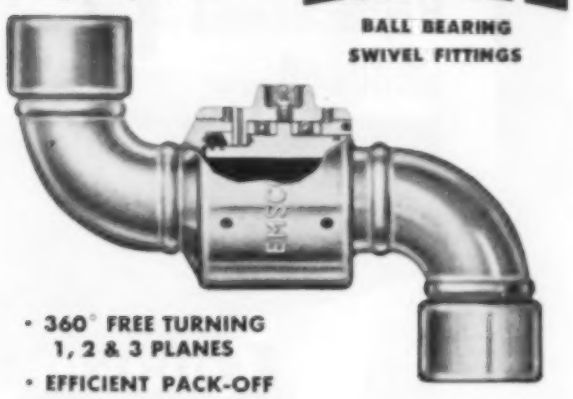
No waste, no costly machine cut-off, de-burring time. Economical replacement for iron pipe, tubing. Our low-cost rolled split steel spacers come ready to use. Hundreds of lengths, diameters, gauges. Save buying time, too! Write for FREE catalog, price list TODAY!

FEDERAL-MOGUL CORP.
11069 SHOEMAKER
DETROIT 13, MICHIGAN

If you write maker identify as IEN - 9956

THE SWING IS TO EMSCO

BALL BEARING SWIVEL FITTINGS



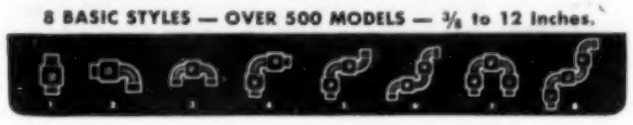
- 360° FREE TURNING 1, 2 & 3 PLANES
- EFFICIENT PACK-OFF
- SAFE, LONG-LASTING

For liquids, semi-solids, gases, steam, chemicals, etc. Hot or cold service. Continuous or occasional rotation. Pressures to 15,000 P.S.I. and temperatures to 750° F. Unique packing design permits easy maintenance while in operation.

Send for complete catalog and prices. State kind of service, pressure, temperature, pipe sizes and indicate style as shown below. Also end connection desired; threaded, flanged or weld ends.

EMSCO MANUFACTURING COMPANY Los Angeles 1, California

8 BASIC STYLES — OVER 500 MODELS — 3/8 to 12 Inches.



If you write maker identify as IEN - 9957

Functional Ranges for wide measurement needs

New WESTON (Model 980) Volt-Ohm-Milliammeter

RANGES:

D-C Volts: 1.6, 8, 40, 160, 400, 1600 (20,000 Ohms/Volt)
A-C Volts: 1.6, 8, 40, 160, 400, 1600 (1,000 Ohms/Volt)
DB Range: —15 db to +54 db (in six ranges)
D-C Milliamperes: 8, 80, 800
D-C Microamperes: 80
D-C Amperes: 8

OHMS RANGE	CENTER SCALE	FULL SCALE
R x 1	25	1,000
R x 10	250	10,000
R x 100	2,500	100,000
R x 1,000	25,000	1 megohm
R x 10,000	250,000	10 megohms

Accuracy 2% d-c, 3% a-c
Scale length 4.63"—size 6¼" x 7½" x 3¼"
Weight 2 lbs., 11 oz.

Complete literature on Model 980, and other WESTON test equipment available on request. WESTON Electrical Instrument Corporation, 614 Frelinghuysen Avenue, Newark 5, New Jersey 8104

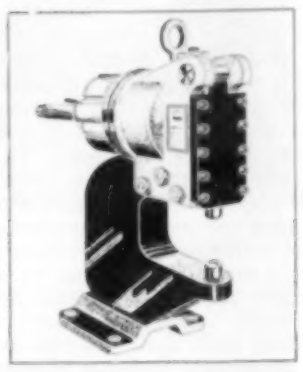
At leading Distributors

WESTON Instruments

If you write maker identify as IEN - 9959

Riveting - Portable pneumatic tool applies compression rather than impact

Source: KELLER TOOL CO.
Parks St., Dept. IEN, Grand Haven, Mich.



Catalog Section 50

The company has assembled new information covering the recently improved design of its compression riveter. Improvements consist of a back stroke adjuster to shorten this stroke and speed up the cycle, a new bench mounting base as shown in the illustration, and new neoprene piston seals. Other characteristics of the tool, which has been in service for a number of years for operations such as riveting, dimpling, forming, staking, pressing, crimping, pressing, marking, have not been altered.

The tool is available with ram stroke measuring 1⅛ to 1⅝ inches. Standard reach is 3 to 7½ in. in the yoke type compression assembly. Capacity to head a cold rivet is 5/32 or ¼ inch. Cycling time can be adjusted to provide a maximum of 150 strokes per minute.

Compressed air is admitted back of two pistons in the tandem cylinder assembly connecting to the ram by means of a toggle mechanism. The pressure moves both pistons forward, flattens out the toggle links and moves the ram down to the bottom of its stroke.

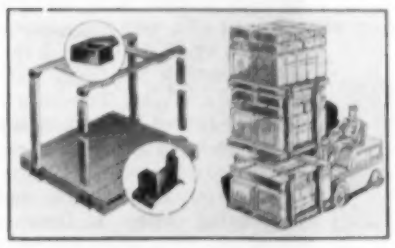
The rear piston moves beyond an air vent, in extreme forward position, and this vent releases full line pressure to a cycling valve which causes the valve to open and directs the cylinder air to the forward side of the rear piston exhausting it from behind both pistons. This action forces the pistons back to starting position. The cycling valve remains open to prevent recycling until the air is shut off by releasing a three-way control valve.

The company has prepared a new Section 50 covering its compression riveters and spinner riveters to provide illustration, description, specifications and data on rivet set design and spinner riveters.

If you write maker identify as IEN - 9960

Handling - Pallet hardware to build frame that permits stacking

Source: PALTIER CORPORATION
1701 Kentucky St., Dept. IEN, Michigan City, Ind.



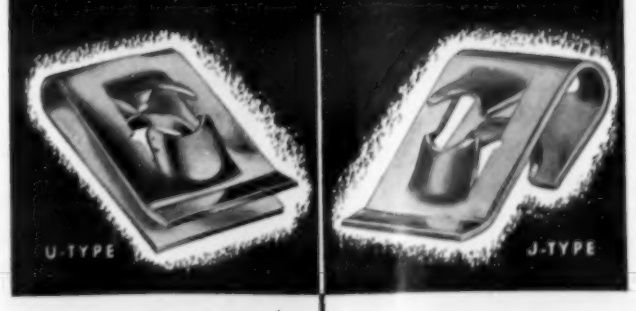
To build your own

Cast iron sockets, for attachment to a wood pallet, and upper sockets, to secure at the corners of a stacking frame, have been developed by the company under the designation of V-Socket hardware. The sockets take 2 by 4-in. uprights to carry safely a 1,500 lb. load in a tier of three pallets in height or a total of 4,500 pounds. The company is prepared to supply the hardware only, the hardware plus uprights and stacking frame, or the complete stacking assembly plus the pallets.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9961

Speed Nuts® ...proved cost-savers on assembly lines throughout industry



"U" and "J" Type SPEED NUTS are self-retaining; hold a constant hole alignment, and will not vibrate loose. They are made of highest quality spring steel in a wide variety of standard and special sizes. "U" and "J" Types are only two of thousands developed by Tinnerman Engineers to cut fastening costs. Ask your Tinnerman Representative, or write us direct for a FREE "Fastening Analysis."

TINNERMAN PRODUCTS, INC.
Dept. 12, Box 6688, Cleveland 1, Ohio

If you write maker identify as IEN - 9962

Tire treads quickly cooled, cut to length on Cyclone Belts

● Hot automobile tire treads are conveyed from the extruder under water sprays that cool and shrink the rubber which is then cut to exact length. All this is done on Cyclone Stainless Steel Flat Wire Belts. This fast, continuous, completely automatic operation greatly reduces costs and speeds production.

Perhaps you have operations that can be done faster, at less cost with the right Cyclone Conveyor Belt. Call in one of our experienced engineers to help you check. No obligation. And write to Dept. C-94 for your free copy of Catalog #5.

USS CYCLONE
METAL CONVEYOR BELTS
SPIRAL WOVEN • FLAT WIRE • FLEX-GRID

CYCLONE FENCE DEPARTMENT
AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION, WAUKEGAN, ILLINOIS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL

If you write maker identify as IEN - 9963

22.6% more air PER POWER DOLLAR

By actual test, DeVilbiss air compressors deliver as much as 22.6% more air per power dollar. Efficiency like this combined with great care in manufacture and assembly are reasons why a DeVilbiss compressor pays for itself out of power savings alone. Full range of pressure. Types available from ½ through 15 h.p. Write today for full details.

DEVILBISS

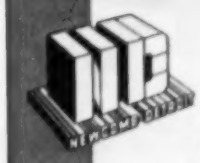
THE DEVILBISS COMPANY
Toledo, Ohio

Barrie, Ontario • London, England • Santa Clara, Calif.

If you write maker identify as IEN - 9964

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURING & INSTALLING OF



INDUSTRIAL OVENS
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HEAT and AIR SYSTEMS

ESTABLISHED 1912
- DETROIT DIVISION
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For Bulletins and Quotations, Write or Call—
NEWCOMB-DETROIT
5757 Russell St., Detroit 11, Mich.
TR 3-2100

If you write maker identify as IEN - 9965

Get the most "coverage" for your money

GOLD SEAL PLASTIC Electrical Tape

Now . . . Gold Seal time-proved quality in *Plastic* Tape. Neat, thin wrapping gives all needed insulation on most jobs. Sticks fast — gives lasting protection — resists sunlight, water, oil solvents. Try it. Free sample on request. Jenkins Bros., Rubber Div., 100 Park Ave., New York 17.

JENKINS

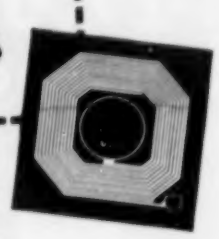
Gold Seal Tape

FRICTION • RUBBER • PLASTIC

Single rolls, cellophane protected, and 10-roll Handy Pack cartons. Also Diamond Seal Friction and Rubber Tapes made to ASTM Specifications.

If you write maker identify as IEN - 9966

PRINTED CIRCUITS



USECO announces expanded production facilities in a separate new plant devoted exclusively to production of

- **Printed Circuits** • **Etched Circuits**
- **Terminal Boards** (Standard and Custom Built)

Our additional facilities permit MASS PRODUCTION techniques without forfeiting the QUALITY or FAST DELIVERY for which USECO is noted.

Printed and etched circuits in sizes to 18"x 18". Samples on request. We meet all Mil Specs. Complete line of Standardized Electronic Hardware. 24-hour service on quotations. Write today for further information.

U. S. ENGINEERING CO.
521 Commercial St., Glendale 3, Calif.

If you write maker identify as IEN - 9967

Ideal Lighting for Assembly Repair and Inspection Benches

NEW DOUBLE UTILITY

FOSTORIA LOCALITE

MODEL 18HX600 $9.80 LIST

Overall length 27½" with 18" flexible steel tubing arm

DIRECTS LIGHT EXACTLY AS NEEDED

DUPLEX OUTLET IN BASE for plug in of electrical tools, glue pots, etc.

Clamps to bench or cabinet back rail, or mounts on flat surface.

Reflector rotates 360° Accommodates A-21 medium screw base lamp including 100 watt.

Illumination — medium asymmetric in excess of 150 footcandles from 100 watt lamp 12" above work area.

Wired Complete with medium screw keyless porcelain socket and 6 ft. SJ extension cord. Toggle switch in base. Duplex outlet wired to be constantly hot with lamp on or off.

Finish — exterior smooth Gray baked enamel—reflector interior high temperature White.

*Write for complete catalog of Localite models for every industrial use.

THE FOSTORIA PRESSED STEEL CORPORATION
FOSTORIA, OHIO

Localites are available through wholesalers everywhere

LOCALITE fostoria for Light ON the Job

If you write maker identify as IEN - 9968

Bearing - Radial ball design with flange housing, ¼ to 1 inch

Source: NICE BALL BEARING CO.
2942 Hunting Park Ave., Dept. IEN, Phila. 40, Pa.

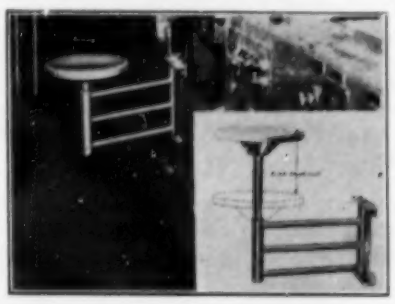
For partition mounting

Series 6900 designates a new line of flange mounted radial bearings in which the housing provides a secure means to bolt the bearing in place. The assembly consists of a double composition sealed precision radial bearing inside the housing with two locking set screws to position the bearing on a shaft. The unit is designed for medium loads and speeds to about 5,000 rpm. The line includes inch standard shaft sizes ranging from ¼ to 1 inch. The bearing also can be provided in unground assemblies.

If you write maker identify as IEN - 9969

Furniture - Seat and bracket for assembly on a machine or work bench

Source: AJUSTO EQUIPMENT CO.
2144 Madison Ave., Dept. IEN, Toledo 2, Ohio

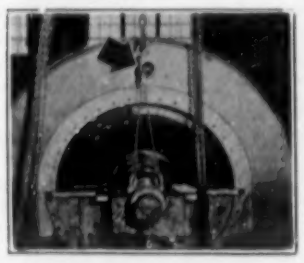


Steel tube construction

Five designs of seat, round steel or wood, formed plywood, solid hardwood, shaped and upholstered, plain or with a two-way adjustable back rest mount on a spring bracket in this new Ajustrite seat assembly for use on a machine, at a bench or on a wall. The seat can be adjusted through 5, 8 or 11 in. vertically, in three available assemblies, by lifting to a desired position and releasing. Seat pads or 2-in. cushions can be supplied.

If you write maker identify as IEN - 9970

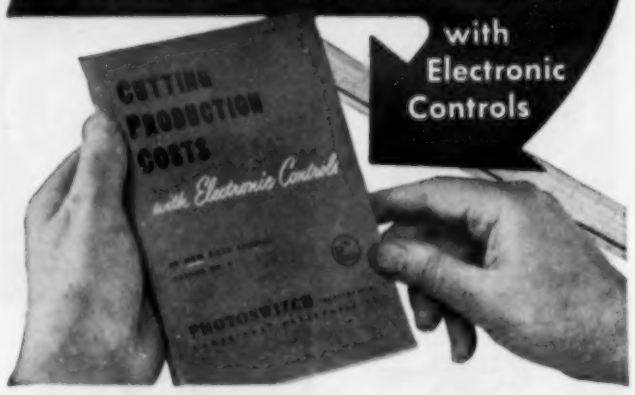
The rotor load of a large generator is distributed equally between its three bearings with the aid of a load gage manufactured by W. C. Dillon & Co., 14620 Keswick St., Dept. IEN, Van Nuys, Calif. The operation is handled by supporting the shaft from a crane at the No. 3 bearing with the gage between the crane hook and the bearing. Then the bearing can be set at a point where it is carrying the desired load. The instrument indicates the load direct in pounds. Its dial reads to a maximum of 10,000 lb. in this case. The line includes units with maximum readings between 500 and 100,000 pounds.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9971

46 tested ways to SAVE MONEY with Electronic Controls



A completely revised edition of the handbook that has become the "bible" of electronic control for thousands of engineers and production executives.

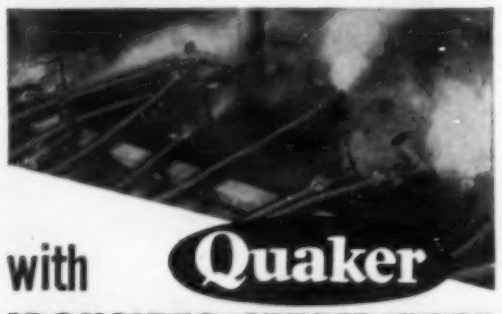
Newly edited, with 46 new case studies showing how standard packaged electronic controls have solved many industrial problems you're likely to meet. It explains clearly and factually, without hocus-pocus, tested ideas for achieving new efficiency through "Electron-eered" counting, weighing, measuring, timing and cycling.

Send for your FREE copy now!

Photoswitch Incorporated
Dept. P7-9, 77 Broadway, Cambridge 42, Mass.

If you write maker identify as IEN - 9972

Hose Replacement Reduced... 1/3



with Quaker

IRONSIDES STEAM HOSE

How to lessen hose replacement yet maintain production? That was the cost problem faced by a large chemical company—and solved by Ironsides' ability to give three times the service of other makes. Braided with steel wire and bonded with rubber. Added braid of glass cord for insulation and extra strength. Kink-proof. Easy to handle At least 4 times stronger than wrapped fabric hose yet costs no more. For economy, use Ironsides—a Quaker exclusive for greater service and safety.

Write for free folder and name of nearest distributor.

QUAKER RUBBER CORPORATION
DIVISION OF H. K. PORTER COMPANY, INC.
OF PITTSBURGH
Dept. E, Philadelphia 24, Pa. Branches in Principal Cities

If you write maker identify as IEN - 9973

ORANGEVILLE HAND TRUCKS

"Keeps Loads Alive"

Illustrated are a few of the many hand trucks we make for factory and warehouse use. They are typical of a wide range of available types and sizes which we can furnish in two-wheel and four-wheel designs. We also build special trucks to order to meet unusual handling needs.

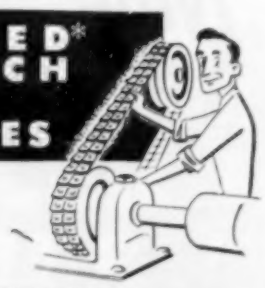
Write for Catalog 50-A

FLOOR TRUCKS ORANGEVILLE

ORANGEVILLE MFG. CO.
ORANGEVILLE 15, PA.
Established 1879

If you write maker identify as IEN - 9974

GUARANTEED* LESS STRETCH on all your V-BELT DRIVES



NEW IMPROVED

BRAMMER RED

- ★ GREATER STRETCH RESISTANCE!
- ★ MORE PLIES IN EACH SIZE GIVES HIGHER POWER CAPACITY!
- ★ IMPROVED FLEXIBILITY!
- ★ GREATER RESISTANCE TO SHOCK, FATIGUE, AND ABRASION!
- ★ MUCH LONGER LIFE!

ALL AT NO INCREASE IN COST!

Write TODAY For Literature to:

***GUARANTEE**

BRAMMER "Red" eliminates stretch problems. We GUARANTEE you will find our new, modern product offers greater stretch resistance than any other link V-belting you have ever used. Your money refunded in full if this statement is not found accurate.

BRAMMER CORPORATION
684 BROADWAY, NEW YORK 12, N. Y.

If you write maker identify as IEN - 9975

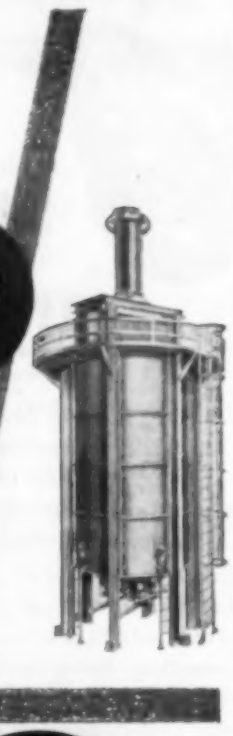
★ For Direct Heating of Liquids and Vapors

★ Indirect Heating Systems Using Circulating Medium

Struthers Wells

FIRED HEATERS

for the Process Industries



Struthers Wells direct fired heaters are available in sizes from 100,000 to 25,000,000 BTU per hour, for heating gasoline, oils or asphalts, superheating steam or gas, and for indirect heating systems.

Struthers Wells indirect heating systems give economical —trouble-free operation at temperatures to 750° F., or above.

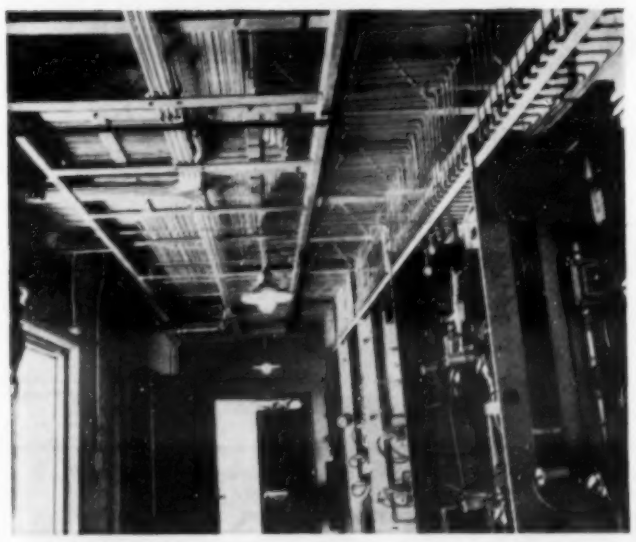
If your process requires temperatures above those of existing steam supply—if steam is not available, or if the process can be improved by higher temperatures, investigate this simple and economical equipment.

Struthers Wells

STRUTHERS WELLS CORPORATION
Warren, Pa.
PLANTS AT WARREN, PA. • TITUSVILLE, PA.
Offices in Principal Cities

If you write maker identify as IEN - 9976

Montana refinery cuts cost 40% with ALCOA UTILITUBE®



50,000 feet of ALCOA Aluminum Coiled Tube serves air, dried by ALCOA Activated® Alumina, to the catalytic cracker and gas plant of Farmers Union Central Exchange, Inc. refinery, Laurel, Montana. Partially exposed to hydrogen sulfide and sulphur dioxide fumes, tubing shows no corrosion since installation in October, 1952.

USE ALCOA UTILITUBE TO SAVE MONEY. It's the lowest cost corrosion-resistant metal tube you can buy . . . may very easily cut your tube costs by 40 per cent!

USE ALCOA UTILITUBE for fuel and lube lines, for hydraulic fluids, for air and refrigerants. It will not gum or sludge in petroleum service, nor will it discolor or contaminate the fluid it carries.

ALCOA UTILITUBE forms, flares and bends as easy as annealed copper yet work hardens less. At sub-zero temperatures it actually gets stronger!

ALCOA UTILITUBE AND FITTINGS are available from your aluminum distributor. For complete information, write for the booklet: *Alcoa Utilitube.*

ALUMINUM COMPANY OF AMERICA
1005-J Alcoa Building, Pittsburgh 19, Pa.

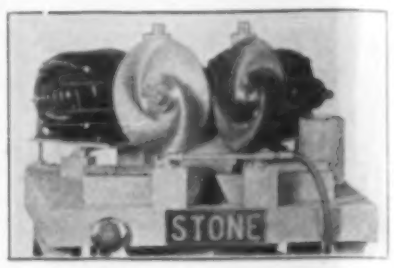
ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

If you write maker identify as IEN - 9978

Sawing - Double miter machine makes right and left hand cuts together

Source: STONE MACHINERY CO.
730 Fayette St., Dept. IEN, Manlius, N. Y.



Guard covers blades

Model DM-10, shown in the illustration with its front guard removed, is available for fast safe cutting of double miters in one operation in aluminum extrusions and tubing. The machine can be employed also to cut other non-ferrous metals and for certain applications in plastics and wood. It mounts 10-in. saw blades, each driven by a 1-hp. motor for operation on 110/220-volt single phase or 220/440-volt three-phase 60-cycle ac.

Capacity is for extrusions measuring 2⅜ in. in width and for tubing to 2 inches. Overall dimensions are 26 by 32 by 54 inches. Table height above the floor measures 34 inches. The saw blades are lubricated by Oil Mist spray. Control can be specified for hand or foot action.

If you write maker identify as IEN - 9979

Vise - Hand collet design for cylindrical work pieces to ¼ in.

Source: FOREDOM ELECTRIC CO.
27 Park Place, Dept. IEN, New York 7, N. Y.

Work drops through

Moving a handle through a short arc locks or releases work held by the centrally located collet in this new Chuxrite vise. The unit is available with seven collet sizes ranging from $\frac{1}{16}$ to ¼ in. in $\frac{1}{32}$ in. increments. Application can be made on the table of a drilling machine, threading machine or on a lathe or milling machine. The vise also can be used on a bench to assist in assembly, polishing, cleaning, soldering. The work drops through when the collet is released. Overall dimensions are 4¼ by 2¼ by 2¼ inches. List price, with one collet, is $9.30. Additional collets are $1.40 each.

If you write maker identify as IEN - 9980

Relatively fine lead screw threads are employed at the starting end of a new tap made by Horspool & Romine Mfg. Co., 5850 Marshall St., Dept. IEN, Oakland 8, Calif., to cut Acme threads in one pass. The lead threads pull the heavier Acme thread cutting portion of the tap into the hole in a manner similar to the starting screw on a wood bit. Patents have been applied for on the design which is available for single or multiple start Acme threads ranging from ¾ to 2½ inches.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9981

Here is the nut that resists stress, wear and vibration

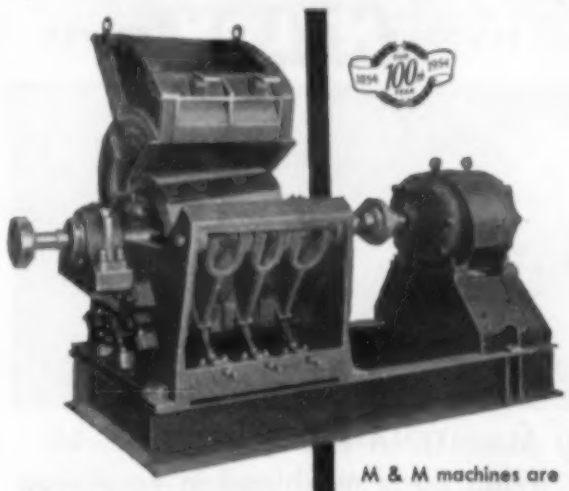
Extra holding power need not add to the cost of any assembly. Gripco Lock Nuts are of one-piece design—thus low in initial cost. Their faster application reduces production costs, their greater holding power reduces mechanical wear and failures, which means longer product life for greater customer satisfaction. The Gripco Lock Nut, with triangular depressions on its top, provides frictional resistance to vibration and permits repeated removal and reapplication. The locking action is produced by a simple, vertical thread deflection, inherent in the nut itself—the same design that has held threaded fasteners tighter for over 50 years. If stress, wear or vibration poses a fastening problem for your products, see how a Gripco Lock Nut can give you a tighter hold, longer wear. Impervious to oil or water. Write for samples and full particulars.

GRIPCO PRODUCTS INCLUDE:

Gripco Lock Nuts, New Gripco "Clinch" Nuts, Gripco Hi-Nuts, Gripco Pilot-Projection and Countersunk Weld Nuts with or without Gripco locking feature.

GRIP NUT COMPANY
"after 50 years still holding strong"
310-S S. MICHIGAN AVE., CHICAGO 4, ILL.

If you write maker identify as IEN - 9982



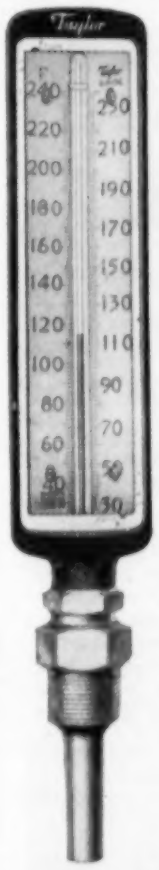
M&M HOGGING MACHINES

M & M machines are built in many types and sizes for hogging wood, paper, plastics, rubber, meat, bones into uniform size for easy disposal or further processing into valuable by-products. Write for illustrated specification catalog.

78

MITTS & MERRILL
1014 SOUTH WATER • SAGINAW, MICHIGAN

If you write maker identify as IEN - 9983



built for LASTING ACCURACY

Taylor Industrial Thermometers are fundamentally laboratory instruments adapted for rugged industrial use. They provide a fast, dependable, accurate check of all temperatures within minus 40° to plus 950° F. or equivalent Centigrade. All thermometers up to 750°F. have the exclusive 3-times-easier-to-read BINOC* tubes that actually encourage frequent reading of your processing temperatures. Rigid rattle-proof, dust-proof case and thick protective glass. Your choice of stem angles and connections.

Protect your valuable equipment and product quality with these fine precision instruments. Write for "A Story of the Taylor Industrial Thermometer." Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

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TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

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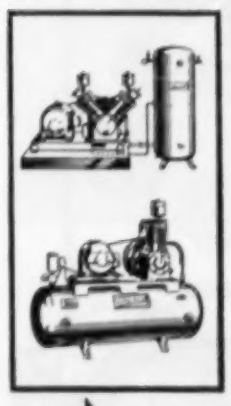
MORE FREE AIR PER HORSEPOWER

Kellogg-American



AIR COMPRESSOR PUMPS, ½ TO 20 HP
Engineered and precision built to give more *free air* (actual air delivered) per hp, Kellogg-American compressors assure maximum air delivery, efficiency and service life. Single or two stage, 1, 2 or 4-cylinder units available for pressures up to 200 psi; displacements to 105.9 c. f. m.

COMPLETE AIR COMPRESSORS, ½ TO 20 HP
Portable or stationary; skid, remote tank or tank mounted; electric motor or gas-engine-driven models permit you to select the most efficient, economical compressor for every job. Write Dept. I N-2 for Bulletin K-307.

FREE — New slip-stick selector to help determine the right Kellogg-American air compressors for your needs. Send for yours on company letterhead today.

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ROCHESTER 9, N. Y.

AMERICAN Brake Shoe COMPANY

Kellogg-American
½ TO 20 H.P. AIR COMPRESSORS · PAINT SPRAY · EQUIPMENT

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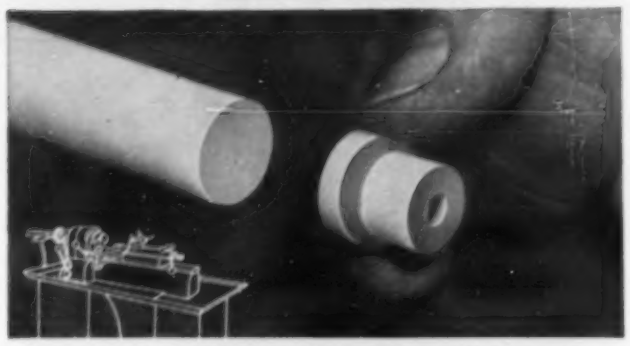
POLYPENCO® NYLON SHAPES



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- Get nylon's wear resistance in gears, bearings, bushings, cams, rollers, etc.
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POLYPENCO® NYLON
... teflon* and other non-metallics

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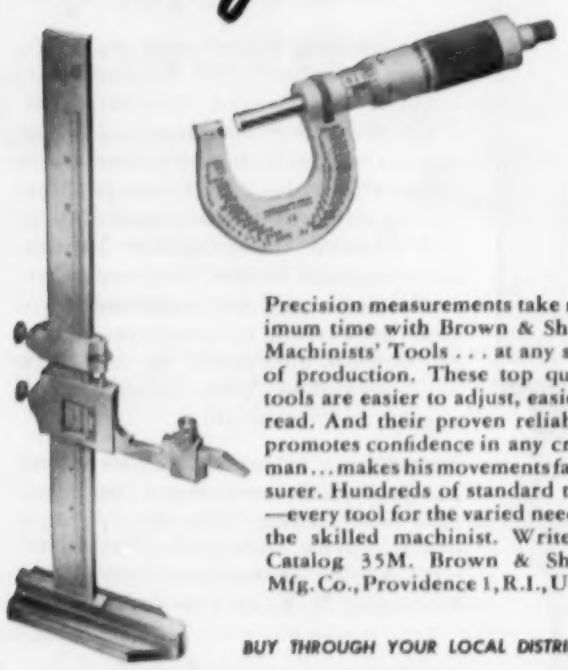
*trademark for DuPont tetrafluoroethylene resin

If you write maker identify as IEN - 9986

Tools that Speed "On-the-job" Accuracy



Precision measurements take minimum time with Brown & Sharpe Machinists' Tools . . . at any stage of production. These top quality tools are easier to adjust, easier to read. And their proven reliability promotes confidence in any craftsman . . . makes his movements faster, surer. Hundreds of standard types—every tool for the varied needs of the skilled machinist. Write for Catalog 35M. Brown & Sharpe Mfg. Co., Providence 1, R.I., U.S.A.

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- IMMEDIATE DELIVERY
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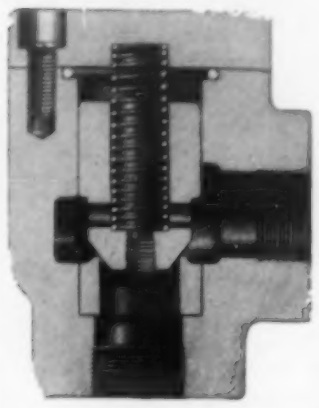
For our Catalog showing our complete line and including full size templates of each Fixture Clamp and Component . . . Save Tool and Designing Costs.

MORTON MACHINE WORKS
2425 Walcott St., Detroit 20, Mich.

If you write maker identify as IEN - 9988

Valve - Hydraulic check for line pressures to 3,000 pounds

Source: RIVETT LATHE & GRINDER INC.
22 Riverview Road, Dept. IEN, Boston 35, Mass.



Series 8640

Three types in which this new hydraulic check valve is available are spring closed, pilot operated and pilot operated with a pressure breaker. The valve is made in ¼ to 1½-in. sizes and can be mounted in any position. It is available with pipe threads or flange connections. The 1½-in. size rates about 104 gpm. at 15 feet per second.

If you write maker identify as IEN - 9989

Marking - Steel stamp designed for interchangeable type

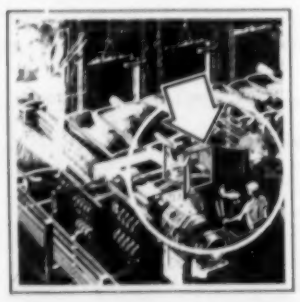
Source: ACROMARK COMPANY
7 Morrell St., Dept. IEN, Elizabeth, N. J.

Heavy duty

Rectangular opening in this new steel stamp holder takes interchangeable type pieces. A spring clip holds the type in position and permits quick change. Holder sizes take two to eight type pieces. Type sizes range from 1/16 to ⅛ inch. The stamp can be used to mark cast iron, cold rolled steel, tool steel.

If you write maker identify as IEN - 9990

Transparent plastic, known as HT-CR-39, is employed to glaze protective windows in the control cockpit of an open-hearth furnace charging machine. The plastic protects the operator. It is resistant to abrasion, hot metal spatter, chemical fumes and solvents. It is available in sheet form in standard thicknesses to ½ inch. It will stand exposure to temperatures as high as 350 deg. F. for short intervals without loss of clarity or rigidity. Cast Optics Corp., 1010 Post Road, Dept. IEN, Riverside, Conn., will send you a small sample and a catalog.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 9991

If your problem is high speed coating of paint, varnish, glue, latex, etc. — POTDEVIN, with sixty years experience in coating equipment design is sure to come up with the solution.

Illustrated is just one of hundreds of special machines. It automatically labels cylindrical paper tubes. Hundreds of machines available that were designed for special industry applications.

Let us know your problem. We either have or will build the machine for you.

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213 North Street • Teterboro, N. J.
ESTABLISHED IN 1892 — POTDEVIN
Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling

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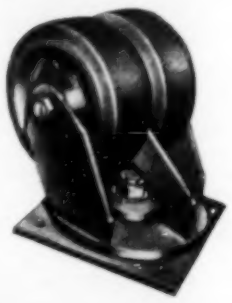
Standard . . . or Special

• You can depend on Albion Industries to meet your most *exacting* requirements for rugged, dependable industrial casters . . . in dozens or thousands.

Albion produces better, yet more economical casters for every conceivable industrial operation. Investigate their advantages today . . . make Albion your *one dependable source* for casters and wheels.



ALBION INDUSTRIES, Inc.
Albion, Michigan

If you write maker identify as IEN - 9993

Modernize your communications . . . without batteries

U. S. I. SOUND POWERED TELEPHONES

Write TODAY FOR THIS CATALOG

Write Dept. D for Catalog

If you write maker identify as IEN - 9994

BIG SAVINGS FROM SMALL INVESTMENT

BUTTERFLY Bench-type precision machines increase tool-and-die shop efficiency, because they save hand labor, and avoid tie-up of larger floor-type machines. Many jobs can be done faster on these small machines.

BUTTERFLY PRECISION FILING AND SAWING MACHINE

Eliminates costly hand filing, sawing and lapping on dies, gauges, tools. So smooth-running that you can balance the flat end of a pencil on the table while machine is running.

Butterfly

Named "Butterfly" because they are as noiseless in running as a butterfly in its flight.

BUTTERFLY PRECISION SURFACE GRINDER

A dual-purpose machine. Rigid and powerful enough for deep roughing cuts, sensitive enough for fine grinding to highest accuracy. Dynamically-balanced spindle supported at both ends by duplex-mounted angular-contact ball bearings.

Write for description, specifications and prices

HARVEY MANUFACTURING CORP.
Subsidiary of GERMANOW-SIMON MACHINE CO., Inc.
384 St. Paul St., Rochester 3, N. Y.

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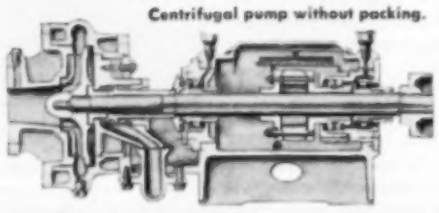
IF YOU PUMP
acids, caustics, pulp, mash, slime, or solids-bearing liquids
WE HAVE A CENTRIFUGAL OR ROTARY PISTON
PUMP THAT CAN DO A GOOD JOB FOR YOU

Centrifugal pump without packing.



Choose from many models in over 25 corrosion and abrasion resistant materials such as chrome—nickel — moly — cupro — alloys; RH silicons, silumin, bronze; rubber-lined, and antimonial lead, etc.

Tell us your application. We'll send data.

NEUMANN & WELCHMAN, INC.
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first* IN INTERIOR FIRE PROTECTION

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OFFERS

PROMPT DELIVERY
WIDE SELECTION
TOP QUALITY

FIRE EXTINGUISHERS and SUPPLIES

Approvd for fires of Class A, A1, B, B1, C, C1—soda-acid, foam, V/L, pump, gas—several sizes and finishes, also cabinets

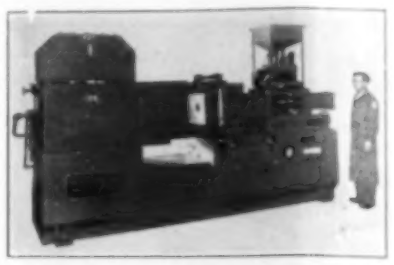
*Voted 1st by engineers, architects, contractors, distributors; most widely used. Also complete line of hose fittings for all purposes. Write for catalog or consulting service.

Established 1887
W. D. ALLEN Manufacturing Co.
CHICAGO 6 • NEW YORK 7

If you write maker identify as IEN - 9998

Plastic Molding - Hydraulic press is automatic, rates 6 to 8 ounces

Source: HYDRAULIC PRESS MFG. COMPANY
Marion Road, Dept. IEN, Mount Gilead, Ohio



To 400 cycles per hour

Small containers, toys, parts for lighting fixtures, electrical and electronic equipment are intended applications for this new automatic injection molding machine. One operator can watch six machines. Each will cycle a maximum 400 times per hour, depending upon the molded part.

Mold clamp capacity is 150 tons. Daylight opening is 20 inches. Clamp travel is 10 inches. Maximum mold mounting space is 15 by 20½ inches. Drive is by a 20-hp. motor. Weight is 14,500 pounds. Designation is Model 150-H-6. List price is in the $15,000 range.

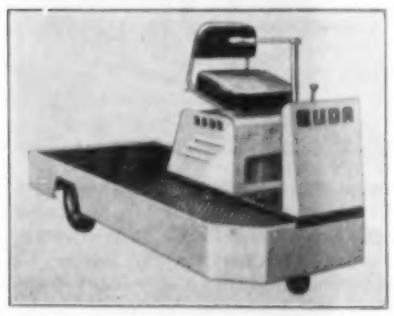
The press employs a straight line hydraulic mold clamp with fast closing and opening speeds accompanied by slow-down prior to mold contact, at break-away and during the ejection of the molded parts. The injection unit is mounted on ways and is actuated by a hydraulic cylinder for nozzle retraction and advance. A hydraulically actuated sprue breaker can be employed by the operator. A small high pressure axial piston pump, in the hydraulic circuit, develops required clamping pressure. A high capacity double vane pump serves both the clamp and injection rams.

The plasticizing chamber is equipped with three heat zones, each pyrometer controlled. Heating bands are mounted directly on the spreader for heat transfer to the center section. Wedge locks permit removal of the plasticizing chamber. Low pressure mold protection prevents high pressures from being developed on the mold cavities in case a part is not ejected in the previous cycle. A compensating material weigh-feeder can be specified.

If you write maker identify as IEN - 9999

Truck - Utility platform unit, rates 1 ton, air cooled engine drive

Source: BUDA COMPANY
15401 S. Commercial St., Dept. IEN, Harvey, Ill.



Front wheel steers

Model CB-20 is new design of the Chore Boy engine driven platform truck. The unit measures 97 in. in overall length and has a 62-in. wheel base. Width is 40 inches. The truck will turn in 67-in. intersecting aisles. It is available with pneumatic or cushion tires, the latter increasing the deck load capacity to 3,500 pounds from the rated capacity of 1 ton.

Construction includes a two cylinder engine rated at 13.6 hp., a quick change clutch differential gear transmittion, hydraulic brakes and a "dead man" brake.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10000

REPUBLIC
VALVES
INDUSTRIAL • CHEMICAL • AIRCRAFT

What! PLUG VALVES THAT TURN EASILY AT 65° BELOW!! WITH NO LUBRICANT!!!

Up to 250°, down to −65° F, is the range of Republic's LO-TEMP selector valve. Easy turning, positive sealing, at pressures to 100 psi. Tapered TEFLON plug requires no lubricant, and is not affected by acids or alkalis.

Aluminum body for aircraft and general use, stainless steel for chemical, food, and dairy industries. Angle, 2, 3, 4-way, with or without drain, flanged for panel mounting.

Write for Bulletin No. 754. Distributors in principal cities from coast to coast.

RM REPUBLIC MANUFACTURING CO.
15655 BROOKPARK ROAD • CLEVELAND 11, OHIO

If you write maker identify as IEN - 10001

My name's Wickwire. I'm a spring.

Around headquarters I'm known as Compression Spring. You'll find me popping up in a million and one places. Sometimes I'm inside the engine of your car making the valves work. Other times I may be under your office swivel chair. Or even inside your ball point pen.

I sure get around. So do my partners, Extension and Torsion Spring.

Like to hear more about what we're doing for others—what we can do for you? Drop a line to Sales and Engineering, 2 New Bond St., Worcester, Mass. Or contact any of the sales offices listed below.

THE COLORADO FUEL AND IRON CORPORATION
Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION
Atlanta • Boston • Buffalo • Chicago • Detroit
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WICKWIRE SPRINGS AND FORMED WIRES
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION THE COLORADO FUEL AND IRON CORPORATION

2507

If you write maker identify as IEN - 10002

GREAT small production furnace

30 KW 60-LB.

DETROIT ROCKING ELECTRIC FURNACE

Here is the furnace designed especially for fast, controlled metal melting on a limited scale. Indirect arc melting, automatic rocking control with 3-phase reversible motor, independently mounted electrode brackets for easy shell interchange, low power consumption. Rocking action assures complete homogeneity of metal, greater heat utilization, longer lining life. For ferrous and nonferrous alloys. Excellent for research and educational use. Sold complete with transformer.

Write today for full information on Type GMS Detroit Rocking Electric Furnace.

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KUHLMAN ELECTRIC COMPANY
1050 26th St. • BAY CITY, MICHIGAN

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If you write maker identify as IEN - 10003

THIS... non-slip flooring
PLUS THIS low budget price

ADDS UP TO THIS A.W. SUPER-DIAMOND

Pattern ½ actual size

When you want real foot safety at an economical price, install *A. W. Super-Diamond.* No other flooring offers such safety, easy maintenance and durability at so low a cost.

Super-Diamond's exclusive engineered raised-diamond pattern puts 40 anti-skid traction points in every footstep.

Super-Diamond takes hard blows and heavy loads—resists fire, heat and most chemicals. And it cuts maintenance costs because it's so easy to clean with hose, mop or broom—has no cracks or corners to collect dirt. Send coupon today for a free copy of our newest booklet on foot safety *and* economy with *Super-Diamond.*

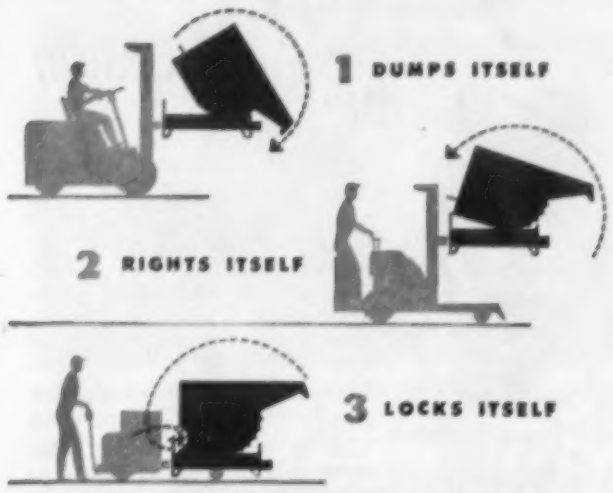
A.W. SUPER-DIAMOND
ROLLED STEEL FLOOR PLATE

ALAN WOOD STEEL COMPANY
CONSHOHOCKEN, PA.

Please send your new, free booklet SD-3 on Super-Diamond for safety.

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

If you write maker identify as IEN - 10004



cuts hand unloading costs 50% or more

Figure it out yourself. Compare the cost of this one-man, semi-automatic operation with the time and labor involved in hand-unloading. The answer is obvious. Hundreds of leading industries have proved it . . . and are using thousands of Roura Hoppers for handling wet or dry, hot or cold bulky materials. Roura builds 'em rugged. They're made of extra heavy gauge metal with sturdy welded joints to stand up under the terrific knocks and bangs of rough handling. Fit any standard fork or platform lift truck. Also available mounted on live skids—casters with malleable or rubber tired wheels. Sizes from ½ to 2 cubic yards. Literature and other information available on request. ROURA IRON WORKS, INC., 1409 Woodland Ave., Detroit 11, Mich.

ROURA *Self-Dumping* **HOPPER**

If you write maker identify as IEN - 10005

Waterless Gas Holder, Long Island Lighting Co., Garden City, N.Y.
Painting Contractor: Long Island Painting Co.
Aluminum Paint: Patterson-Sargent Co., New York and Cleveland

YOU, TOO, SHOULD PROTECT YOUR TANKS WITH ALUMINUM PAINT

Long Island Lighting has always used aluminum paint on this huge gas holder because aluminum paint covers well, gives a uniform, attractive coating so important on surfaces this large. Aluminum paint had served 7 years prior to repainting in November, 1952.

Long Island Lighting also uses aluminum paint on its propane tanks. They have found that aluminum paint's high reflectivity reduces pressure build-up caused by solar heat.

ALCOA does not make paint, but ALCOA Aluminum Pigments are used in more aluminum paints than any other brand. Special formulas have been developed by your paint manufacturer to solve individual problems. Paints made to these formulas actually cost you less, last longer, give utmost protection against heat, cold, sun, rain, smoke and fumes.

If *you* have a tank, smokestack, roof, boiler or other facility that needs the best protection, you should investigate aluminum paint. Write to ALCOA today for information.

FREE BOOKLET tells how to paint with aluminum.

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

Aluminum Company of America, Paint Service Bureau
1787-J Alcoa Building, Pittsburgh 19, Pa.

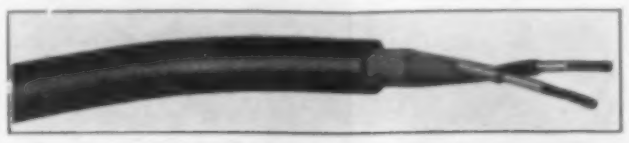
Please send your free book, *Painting with Aluminum*. I plan to paint

Name
Company
Address
City Zone State

If you write maker identify as IEN - 10007

Conductor - Rubber covered cord for indoor use on portable appliances

Source: WESTERN INSULATED WIRE CO.
2425 E. 30th St., Dept. IEN, Los Angeles 58, Calif.



Technical data upon request

Rancho trade names a new rubber covered, rubber insulated electric cord available with 2, 3 or 4 conductors. It is made in a Type S in sizes from 18 through 10 and with 2 or 3 conductors and in a Type SJ in sizes 18 and 16. Type S is rated at 600 volts and Type SJ at 300 volts. Both bear the label of Underwriter's Laboratories, Inc. The cord is intended for use indoors, away from oil and where it will not be subjected to temperature extremes.

If you write maker identify as IEN - 10008

Painting - Aluminum paste and liquid vehicle for hot surfaces

Source: UNITED LABORATORIES INC.
16801 Euclid Ave., Dept. IEN, Cleveland 12, Ohio

Technical data upon request

One gallon covers 500 sq. ft. in this new Hot Surface SP-415 high temperature aluminum paint. It is suited for surfaces subject to temperatures to 1,000 deg. F. It can be applied while the surface is warm. It is particularly for use on boilers, pipes, heaters, flues, retorts, heat exchangers, ovens, stacks, tanks, vats. The paint is packaged in a double compartment container to be mixed on the job.

If you write maker identify as IEN - 10009

Potwatcher and Temp'n Time are new timer and timer-thermostat control for gas stoves. The former can be set to

time cooking on a top burner in one minute periods to one hour. It also can be set for a desired height of gas flame from the burner. Turning the timer knob to the desired interval starts the clock mechanism and permits the burner to light. At the end of the set period the timer mechanism shuts off the gas. The Temp'n Time unit combines the timing mechanism with the previously developed thermostat to control temperature and time oven cooking in 15-min. units to 4 hours. Both controls are manufactured by Robertshaw-Fulton Controls Co., 2451 W. Cumberland Ave., Dept. IEN, Knoxville 16, Tenn., and are available for built in application by stove and range manufacturers. They cannot be applied to equipment now in service.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10010

A.C.M.I. BORESCOPES

for close-up visual inspection of internal surfaces and hidden parts

A.C.M.I. Borescopes permit close-up visual examination of interior areas and surfaces not otherwise visible. They save time and money, and prevent costly dismantling. • Each Borescope is a compact, self-illuminated industrial telescope of highest quality, employing a precision optical system, that produces a flat visual field. Lens systems are fully corrected for color, spherical aberrations, and coma, with all lens surfaces coated to increase light transmission.

Write for free informational folder, or tell us your problem.

A.C.M.I. Borescopes are available in 4 angles of vision (as above)—in diameters of .120" to 4.00"—in lengths of 4" to 720". Special models for special problems.

American Cystoscope Makers, Inc.
1241 LAFAYETTE AVENUE NEW YORK 59, N. Y.

If you write maker identify as IEN - 10011

STOP THIS WITH RESOLITE

Material represents less than 20% of the cost of reglazing. The *real* cost is high-priced labor. You can end expensive pane replacement with Resolite.

A fiberglass-reinforced polyester resin, translucent Resolite can't shatter or crack when hit by flying objects or subjected to severe vibration. It is unaffected by weather extremes of heat, cold or moisture and by usual industrial fumes.

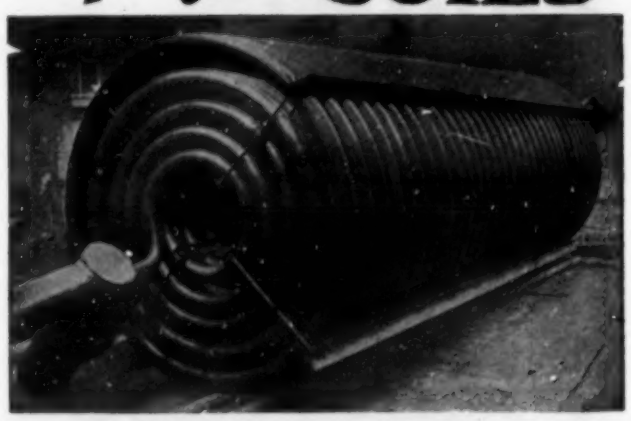
Flat Resolite panes, factory cut to size, are installed like glass. For skylights or sidewalls in corrugated buildings, Resolite is molded to nest with all standard metal or asbestos corrugated sheets. Resolite passes up to 90% as much light as clear glass—a soft, diffused light which reduces eyestrain.

For further information see Sweet's Plant Engineering File or write:

RESOLITE CORP., Box 514, Zelienople, Pa.
Distributors in principal cities, U.S. and Canada

If you write maker identify as IEN - 10012

PITTSBURGH *a air p pressure t tested* COILS



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Built for your particular needs. Send blue print or rough sketch for Pittsburgh quotation. Also air-pressure tested welded Headers, Welded Ammonia Receivers, Accumulators, Pipe Coils, Bends, Boiler Tubes. "Let us quote!"

Ask for Pipe Coil Data Book

Pittsburgh Pipe Coil & Bending Company
Division of Pittsburgh Standard Conduit Co.
61 BRIDGE STREET ETNA, PITTSBURGH 23, PA.

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SWECO VIBRATING SCREEN SEPARATORS

For virtually any material: Pulp & Paper, Ore, Chemicals, Grain, Clay, Sand & Gravel, Foods, Waste Material

Single or multi-deck (Up to 5 fractions)
10 to 325 mesh screens
Wet or dry material
Easy to adjust
Self-contained (Ready to plug in)
18" or 48" dia. models

New "3-D" screening action

The unique "spiral-gyratory" action of the SWECO floating-screen Separator tumbles the material in all three directions at once . . . results in faster, more efficient separation . . . reduces blinding and clogging.

Send for illustrated catalog

Free analysis and recommendations

SWECO will make a detailed study of special screening problems without cost to you. SWECO Separators are sold on a guaranteed performance basis.

SWECO **"3-D" SEPARATORS**

Engineers and Constructors . . . Manufacturers

Southwestern Engineering Company
4800 Santa Fe Avenue, Los Angeles 58
Dept. 23-40 Cable address: SWECOLA

If you write maker identify as IEN - 10014

ITS FELT TIP WRITES ON EVERYTHING!

in BOLD or *fine* lines

Marking steel drums, tools, parts, pipes, etc. is smooth sailing with the Flo-master Felt-Tip Marker.

The complete range of ten colors in Flo-master Inks permits speedy and accurate identification for assembling, stocking, inspecting.

Flo-master semi-opaque inks — waterproof, non-smudging, fast-drying — are recommended for hard-to-mark surfaces using the KING SIZE Flo-master. For general purpose marking—cartons, cases, etc—use Transparent Inks with POCKET SIZE Flo-master (illustrated).

Contact your supplier or write direct to Cushman & Denison Manufacturing Co., 153 West 23rd Street, New York 11.

Flo-master
FELT-TIP MARKER

If you write maker identify as IEN - 10015

Naturally—there's only one answer . . . National Vulcanized Fibre! Its inherent properties are: great mechanical strength, high dielectric strength, arc resistance, excellent machinability, good forming qualities, strong resistance to wear and abrasion, durability and lightness in weight. And, we might add another — ability to conform to special requirements, including degrees of hardness, density, flexibility, toughness, or surface finish!

With all this in combination, is there any wonder that National Vulcanized Fibre is the answer to a design or production engineer's dream? In thousands of uses in many industries, it has a 70-year record for versatility which no other material can match! And the end is still out of sight . . . new uses crop up by the day.

what material excels them all in physical properties?

Perhaps in your own business there's a place where National Vulcanized Fibre can do one more good job—or a better job than is being done now by something else. We have complete facilities (including the finest of fabricating shops) to fill your needs. A fully detailed catalog might be helpful. May we send one? Write to the address shown below, Dept. G-9.

• *National also manufactures Phenolite Laminated Plastic, Peerless Insulation, Vul-Cot Waste Baskets, Materials Handling Equipment and Textile Bobbins.*

NATIONAL
VULCANIZED FIBRE CO.
WILMINGTON 99, DELAWARE
FIRST—IN MAKING THE MOST OF LAMINATED PLASTICS

If you write maker identify as IEN - 10017

Drilling - Portable electric tool designed to use in confined locations

Source: STANLEY ELECTRIC TOOLS
480 Myrtle St., Dept. IEN, New Britain, Conn.

List price is $60

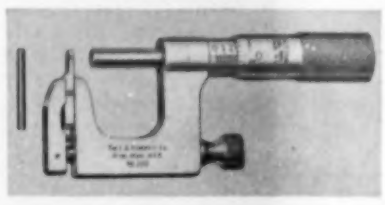
A spade handle, at the rear of this new drill, and a pipe handle on the side opposite the control handle can both be removed when obstructions make it difficult to apply the tool. It has a rating to ½ in. in steel and 1⅜ in. in wood. It is assembled in a die cast aluminum housing. Shafts ride on anti-friction bearings. Gears are made of alloy steel.

Control centers at a momentary contact switch with a push button locking device. The key type chuck is supplied with a receptacle in the tool handle to hold the key. No load speed is 550 rpm. Full load speed is 330 rpm. The universal motor is available for operation on 110 or on 220 volts. Overall length is 12¼ inches. Weight is 9⅛ pounds.

If you write maker identify as IEN - 10018

Gage - Precision micrometer, interchangeable anvils for given work

Source: L. S. STARRETT COMPANY
100 Starrett St., Dept. IEN, Athol, Mass.



A versatile tool

Mul-T-Anvil trade names a new micrometer equipped with a vise type frame to grip interchangeable anvils. The gage is supplied with a rod anvil, about 0.120 in. in diameter, to measure from a hole to an edge and a flat anvil to measure from the inside of a slot or groove to an edge. The flat unit measures 0.125 in. in thickness at one end and 0.060 in. at the other. In addition to the usual measurements the micrometer can be employed as a height gage after removing the clamping vise jaw.

Overall range is 1 inch. Readings are in 0.001 in. divisions. The gage is finished in satin chrome and is fitted with a hardened and ground spindle. The anvil and spindle faces are lapped. Decimal equivalents are carried on the frame.

If you write maker identify as IEN - 10019

Cafco Spray trade names a new blend of mineral wool fibers, white in color, for spray application on clean rigid surfaces, such as metal, Transite, plaster, wood, concrete, wire lath. The material provides thermal insulation, acoustical control, and it also fireproofs. It prevents condensation, deadens sound. For technical data contact Columbia Acoustics & Fireproofing Co., Dept. IEN, Stanhope, N. J.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10020

PHOTO EQUIPMENT... Geared to SCIENTIFIC and INDUSTRIAL Uses

FREE 55th Annual Catalog

96 Pages crammed with **Thousands** of Newest **Photo Tools, Cameras** (Press, Studio, Candid, Special Purpose, etc.), **Lenses, Projectors,** Lighting and Developing Equipment, Enlargers, etc. for Amateur - Professional in Scientific or Industrial work.

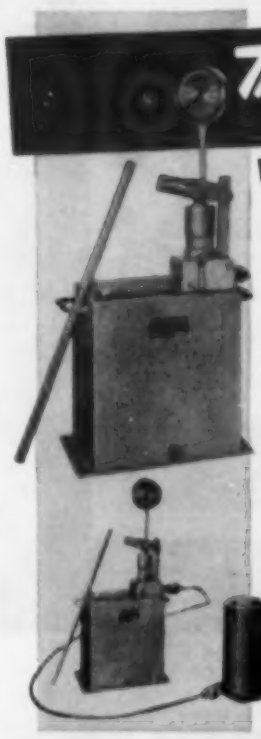
CAMERAS	Commercial — Recording — Identification — Special Purpose — Polaroid Land Back—Laboratory — Photomicrography — etc.
ENLARGERS	Reducers — Copying, etc.
LENSES	Largest stock from ⅜" to 72"— all speeds — Portrait — Commercial—Wide Angle—Tele-Lens—Coating, etc.
PRINTING EQUIP.	35 Mm. to 8x10 in. etc.
PROJECTORS	Demonstration and Instruction.
LABORATORY EQUIP.	Stainless Steel, Slide Equip., Dryers, etc.

Fine Photographic Equipment For Over 55 Years

Burke & James, Inc.
311 S. Wabash Ave., Chicago 4, Ill. U.S.A.

If you write maker identify as IEN - 10021

They're Rugged!



Watson-Stillman Hand Pumps and Hydraulic Jacks

W-S Pumps are available with maximum pressure deliveries of 3,000 to 10,000 psi. Single and double plunger type . . . can be mounted on any size reservoir. Use with light oil, water with soluble oil or plain water. Excellent for operating hydraulic tools, jacks, presses and other hydraulic equipment . . . and for general hydrostatic testing.

W-S Hydraulic Jacks with independent pumps are used for many construction and maintenance jobs. Jack is connected to pump by flexible copper tubing . . . ideal for operation in inaccessible or dangerous locations. Capacities . . . 20 to 500 tons.

Write today for Bulletin A-5.

WATSON-STILLMAN FITTINGS DIVISION
H. K. PORTER COMPANY, INC.
1A Roselle, New Jersey

If you write maker identify as IEN - 10022

SPEEDS CATERPILLAR-BUILT TRACTOR EQUIPMENT

The ease and speed with which dies can be changed on Steelweld Presses and necessary adjustments made have proven a big asset in obtaining high production of a great variety of steel parts for scrapers, rippers, bulldozer blades and wagons at the Joliet Plant of Caterpillar Tractor Co.

STEELWELD BENDING PRESSES CATALOG No. 2010

Send for free copy of catalog No. 2010.

THE CLEVELAND CRANE & ENGINEERING CO.
4255 E. 281st St., Wickliffe, O.

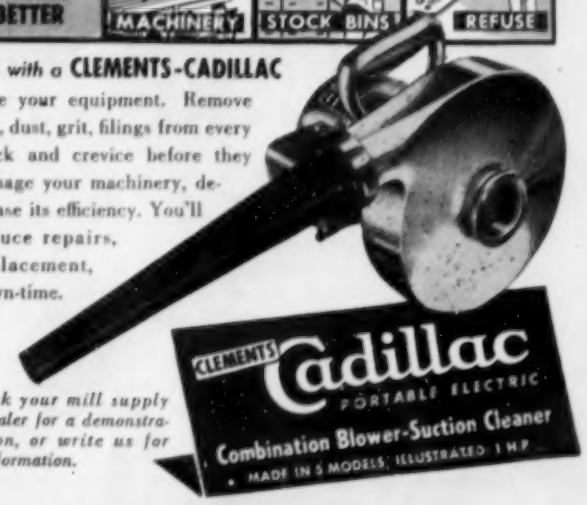
STEELWELD PRESSES

If you write maker identify as IEN - 10023

SAVE TIME • MANPOWER MACHINERY • MONEY

. . . with a **CLEMENTS-CADILLAC**

Save your equipment. Remove dirt, dust, grit, filings from every crack and crevice before they damage your machinery, decrease its efficiency. You'll reduce repairs, replacement, down-time.



Ask your mill supply dealer for a demonstration, or write us for information.

CLEMENTS Cadillac PORTABLE ELECTRIC
Combination Blower-Suction Cleaner
MADE IN 5 MODELS; ILLUSTRATED 1 H.P.

"Most Useful Tool in the Plant"

CLEMENTS CADILLAC COMBINATION BLOWER-SUCTION CLEANERS
CLEMENTS MFG. CO., 6620 S. NARRAGANSETT AVE., CHICAGO 38, ILL.
USED BY BUSINESS AND INDUSTRY FOR MORE THAN 44 YEARS

If you write maker identify as IEN - 10024

Here's YOUR answer to small traction problems. May be used to operate keyboards, light springs, control board signal flags, and door latches. Conventional design. Wide range of d. c. voltages. Self-lubricating Nylon bobbin. Side leads. Design variations available to meet YOUR specific problems. Write TODAY for full information!

CANNON PLUGS

Please Refer to Dept. 112
CANNON ELECTRIC COMPANY, 3209 Humboldt St., Los Angeles, California
Factories in Los Angeles; East Haven; Toronto, Canada; London, England. Representatives and distributors in all principal cities.

If you write maker identify as IEN - 10025

For Your Protection . . .

TAPECOAT® is serviced

by the men who sell it

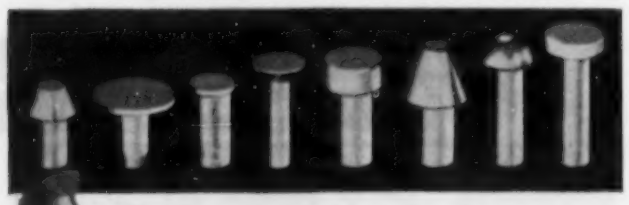
The service behind TAPECOAT is as distinctive as this coal tar coating in tape form. The sales engineer who sells the job also services it personally. That's why you can specify TAPECOAT with confidence and know that you are getting lasting protection for pipe, pipe joints, tanks and other vulnerable steel surfaces above or below ground. Sizes: Rolls of 2", 3", 4", 6", 18" and 24" widths. Easy to apply. Dependable since 1941 in cutting maintenance and replacement costs. Write for details and prices.

The TAPECOAT Company

Originators of Coal Tar Tape Protection

1553 Lyons Street, Evanston, Illinois

If you write maker identify as IEN - 10026



How Townsend Rivets help plug holes in cost and design plans!

Economy in production-line assembly of components and simplicity of product design are only two advantages you enjoy when you use Townsend cold-formed rivets.

In addition to their low initial cost, they improve your product by making possible tightly sealed joints of great strength and high resistance to vibration.

Townsend regularly produces several thousand styles and sizes of standard and special rivets so that you can readily select from stock the type suited to your operation.

A feature of Townsend service is that small rivets are sold by the piece instead of by the pound, either in packages or in bulk.

To keep costs down and quality up, specify Townsend rivets and special fasteners.

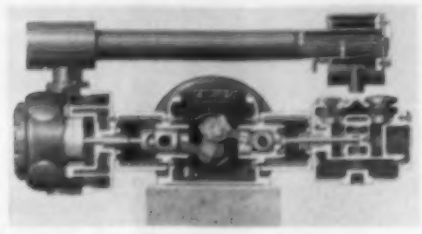
Townsend Company

NEW BRIGHTON, PENNSYLVANIA

If you write maker identify as IEN - 10027

Compressor - Opposed cylinder balanced design, 75 and 100 hp. sizes

Source: INGERSOLL-RAND COMPANY
11 Broadway, Dept. IEN, New York 4, N. Y.



Bulletin Form 3155

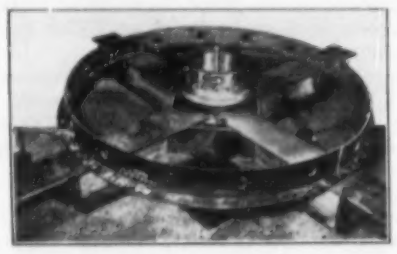
Piston and rod assemblies, on the two sides of the double throw crankshaft in this new Type PHE compressor, are equal weight to balance out primary and secondary inertia forces without the use of counterweights. Cross heads are aluminum piston design. Floating aluminum sleeves are used for the main and crank pin bearings. The cross head pin bearings are bronze, also in floating design. The bearings rotate slowly, as the compressor operates, to take major thrust of each succeeding stroke on a different portion of the shell so wear is evenly distributed. The three main bearings are interchangeable.

The compressor is available in single or multi-stage design. The basic unit is two-stage for 80 to 125-lb. pressure. The assembly can be specified for higher or lower pressure and to pump vacuum with suitable cylinder arrangements. The two-stage compressor employs an intercooler with tubes through which the cooling water passes. Type A channel valves, in the cylinders minimize air speed and promote smooth flow. The motor is mounted direct on the crankshaft. The housing is sealed to retain lubricant and prevent entrance of dirt or moisture.

A pump forces oil through the drilled crankshaft to the main and crankpin bearings. From there it reaches the cross head pin bearings through the drilled connecting rods. A low oil pressure shutdown device protects against loss of lubrication. An adjustable sight feed lubricator, driven by the crankshaft, meters oil to the cylinders. Overall dimensions for the 75 and 100-hp. two-stage 100-lb. assemblies are about 8¼ by 4½ by 5½ feet.

If you write maker identify as IEN - 10028

Fifty-eight permanent magnets, 11/16 in. in diameter, are assembled in a 16-in. center plate that forms part of a jig to assemble fan blades on a hub inside a circular ring. The magnets are insulated from the center plate by thin wall aluminum tubing and washers. They hold the impeller hub securely in position while blades are welded between it and the ring which is centered on I-beams radiating out from the center on 90-deg. spacing. The fixture takes work to about 83 in. in diameter. It prevents movement in the vane blades, hub or outer ring during the welding operation. Carboloy Dept., 11167 E. 8-Mile Road, Dept. IEN, Detroit 32, Mich., supplied the magnet elements for the fixture.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10029

"HOW MEYERCORD SERVES INDUSTRY"
No. 2 of a Series

MEYERCORD *Nameplate* DECALS Cut MANUFACTURING EXPENSE

Your brand name and trademark are powerful sales weapons in today's competitive market. Prominently and attractively displayed on your products, they're an immediate identification of high quality to the consumer.

Meyercord Nameplate Decals offer you a better way to identify your product most effectively while cutting labor, time and material costs. There's a Meyercord Decal for every commercial surface, every temperature condition—in fact wherever identification is in order.

Meyercord Nameplate Decals can be applied with speed and ease *on your present production line* . . . whether your run is short or long. Let an expert Meyercord Decal Engineer unfold cost-cutting proof and make recommendations all without obligation.

FREE! "Mark-It" Manual of Decal Nameplates

Send today, on your company letterhead, for this valuable full-color guide to every industrial problem in marking, identification, instruction, and information.

THE MEYERCORD CO.
World's Largest Decalcomania Manufacturers

DEPT. W-315
5323 WEST LAKE ST.
CHICAGO 44, ILLINOIS

If you write maker identify as IEN - 10030

CM

HERC-ALLOY

THE ORIGINAL ALLOY CHAIN

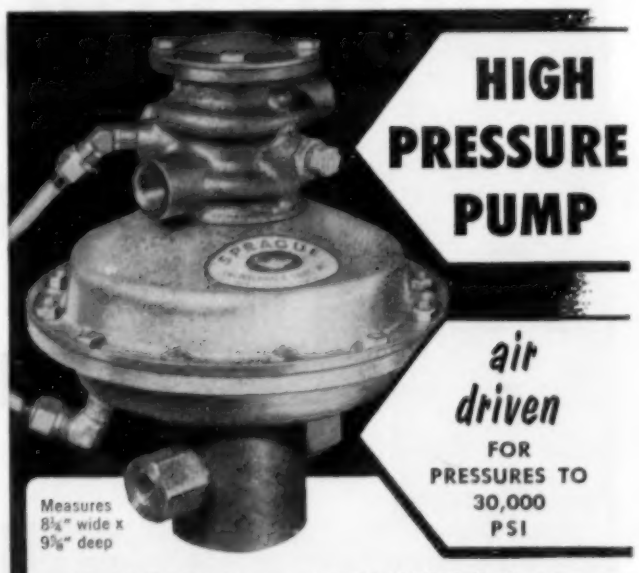
- An all-purpose chain for use where safety is paramount.
- Offers highest resistance to impact loading.
- Individually tested to twice working-load limit and registered.

Sold in running lengths, slings and other special assemblies.

CM HOISTS AND CHAIN

COLUMBUS McKINNON CHAIN CORPORATION
TONAWANDA, NEW YORK

If you write maker identify as IEN - 10031



HIGH PRESSURE PUMP

air driven

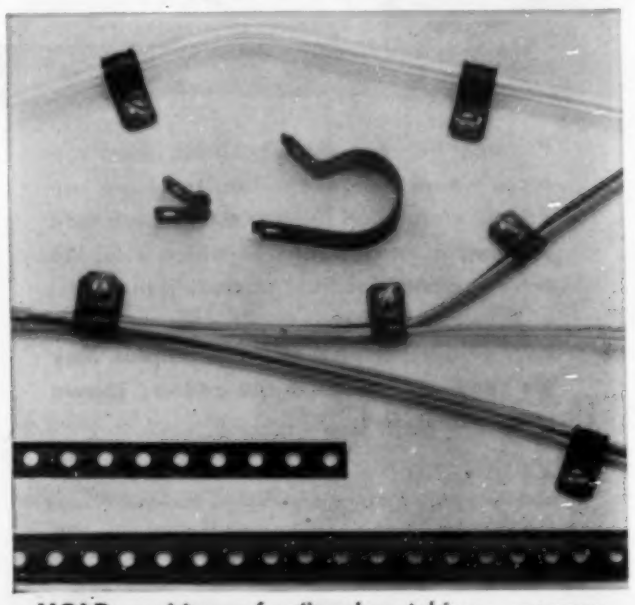
FOR PRESSURES TO 30,000 PSI

Boost 100 PSI. air pressure to 10,000 PSI. fluid pressure for $173.25 (FOB Gardena, Calif.). Eight standard models for output fluid pressures of 1,000 to 30,000 PSI. Special models for lower or higher pressures.

Applicable wherever low volume output at high pressures is the requirement. For oil or water service. Complete power packages also available. Send for bulletins.

SPRAGUE
Engineering and Sales Corp.
1144 WEST 135TH STREET, GARDENA, CALIFORNIA

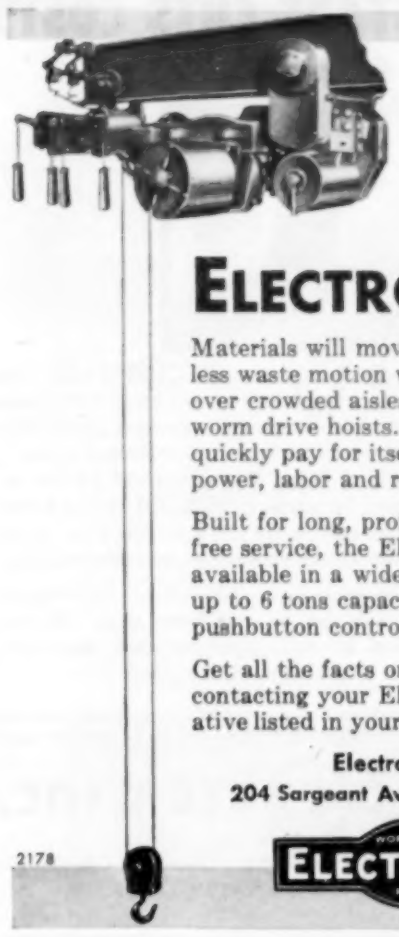
If you write maker identify as IEN - 10032



HOLD — wiring — fragile glass tubing — mercury switches—components—etc. with these **NyGrip*** (all Nylon) plastic cable clips and perforated strapping—light weight — tough — flexible — strong — chemically resistant—use from —60 to 250°F—send for free samples and literature. *TM

WECKESSER CO.
5257 N. Avondale Ave. Chicago 30, Ill.

If you write maker identify as IEN-10033



move it overhead with ELECTROLIFT

Materials will move faster and with less waste motion when you move them over crowded aisles with ElectroLift worm drive hoists. Any ElectroLift will quickly pay for itself in savings in time, power, labor and reduced accidents.

Built for long, profitable and trouble-free service, the ElectroLift hoist is available in a wide variety of models up to 6 tons capacity with optional pushbutton control.

Get all the facts on ElectroLift by contacting your ElectroLift representative listed in your telephone directory.

ElectroLift, Inc.
204 Sargeant Avenue, Clifton, N. J.

2178

WORM DRIVE ELECTROLIFT HOISTS

If you write maker identify as IEN-10034

DOCKSON GOGGLES

Built for Better Protection!

ADVANCED DESIGN—
Dockson Goggles are safety engineered by eye protection specialists to give you the most modern protection available.

COMFORT PLUS—
Dockson Goggles are built with the worker in mind. True comfort reduces hazard, strain, and fatigue.

TOP CONSTRUCTION—
Over 30 years of dependable craftsmanship is yours in every Dockson Goggle. Only the finest materials are used.

YOUR DOCKSON DISTRIBUTOR—
A selected specialist, stocks a complete line of Dockson products to give you fast service and personal attention. We back our distributors 100%.

No. 50 SERIES—New, sturdy, lightweight plastic welding goggle that snugly fits any facial contour, gives complete spark protection—easily replaceable lenses.

No. 60 SERIES—A general purpose chipping and grinding goggle that is comfortable, light, and sturdy.

No. 76 SERIES—A general use welding goggle that is, like all Dockson Goggles, easy to raise and lower.

No. 176 SERIES—A headgear goggle for general welding use that may be worn close to the face or at any adjusted off-the-face angle.

Dockson CORPORATION

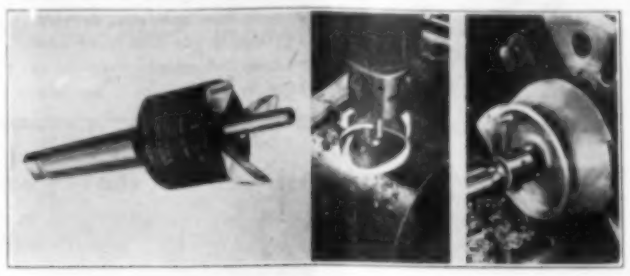
WRITE FOR YOUR DISTRIBUTOR'S NAME AND OUR COMPLETE CATALOG OF HEAD AND EYE SAFETY EQUIPMENT.

3839 Wabash Ave. • Detroit 8, Michigan

If you write maker identify as IEN-10036

Cutting - Bit equipped holders for holes from 1 to 6 in. in metal

Source: ROBERT H. CLARK COMPANY
9330 Santa Monica, Dept. IEN, Beverly Hills, Calif.



Chatter free action

Five sizes are included in the company's new design of Hole-Maker tools to cover a range of diameters from 1 to 6 in. in aluminum, cast iron, steel and similar metals. The tools produce clean through holes and can be applied on cylindrical or crowned surfaces such as pipe, tanks, wing sections. They will clean up cored holes in castings and will cut through webbed sections and flashings in forgings when they are employed on turret lathes and chucking machines.

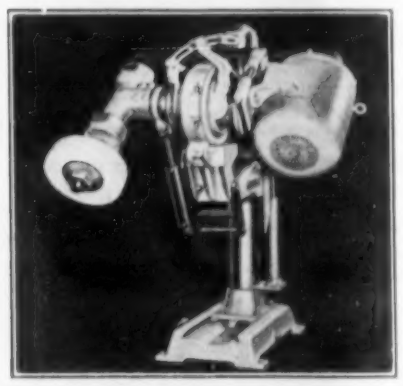
The new design represents improvement over the cutter previously described IEN-8220-51. The smallest unit has a range from 1 to 2 inches. The largest covers 5 to 6 inches. Shanks can be straight or in standard Morse No. 2, 3 and 4 taper. Special B & S or NMTB tapers and special pilots and pilot drills are available to order.

The cutter bits are standard square high speed steel. They can be specified ground ready to use in specified materials. The bits can be reground on a standard tool and cutter grinder or can be shipped to the company for regrinding.

If you write maker identify as IEN-10037

Polishing - Motor driven head "floats" buff over irregular work

Source: MURRAY-WAY CORPORATION
Box 180, Dept. IEN, Birmingham, Mich.



For a production line

Number 55 designates a new universally adjustable motor driven head in a balanced assembly. It permits adjustment so the spindle mounted buffing wheel is free to rise and fall while remaining in contact with an irregular work surface. An adjustable float restrictor controls the amount of rise and fall. An automatic positioning device provides for constant steady contact between wheel and work.

The head can be equipped with pneumatic controls to lift the wheel from the work in automatic installations. It can be employed in either right or left hand operation and can be installed in line on 68-in. centers. The spindle is equipped with lubricated and sealed bearings that require no lubrication in service. The head will take motors rating to 30 hp.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10038

MAN SAVER

Sweeps up to 400% faster than costly pushbroom cleaning . . . saves money . . . saves manpower

A Parker Floor Sweeper saved $2100 a year for a food manufacturer — $520 a year for a lumber yard—75% of all sweeping costs for a building material manufacturer. *You, too, can save.*

Sweeps all type floors. Collects and sweeps in one operation. Easy to empty. A money-saver for any plant from small garage to large factory or warehouse.

Now available — information file containing time studies, case histories, and full details. *Write, wire, or telephone today.*

FACT FILE AVAILABLE

PARKER INDUSTRIAL FLOOR SWEEPER

PARKER SWEEPER CO. • 59 Bechtle Avenue, Springfield, Ohio

If you write maker identify as IEN-10039

New! AMERClone Dry Centrifugal Dust Collector

A new dry centrifugal, offering collection efficiencies equal to or better than other available units—designed to handle large exhaust volumes containing abrasive dust in high concentrations. AMERclone's major advantages are:

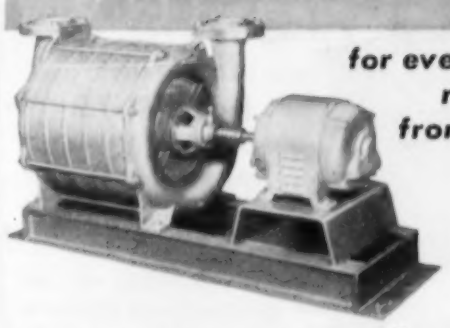
- Requires small space due to fact that a single AMERclone tube, 4" in diameter, has an approach velocity of 1000 fpm and a cleaning capacity of 350 cfm.
- Less subject to abrasion through use of thick wall gray iron castings plus fact there is no recirculation of dust load to increase abrasive effect.
- Collection efficiency remains practically constant over wide range of exhaust volumes.

For complete AMERclone data, write for Bulletin 291

AAF **American Air Filter** COMPANY, INC.
335 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.

If you write maker identify as IEN-10040

LAMSON BILLMYRE BLOWERS & EXHAUSTERS



for every pressure requirement from ½ to 7 lb. . . . single or multi-stage design

Cast iron or fabricated steel, for air or gas—agitating, aerating, combustion, cooling, ventilating, gas and acid manufacture. Guaranteed consistently even pressure without contamination. Low maintenance cost, as shaft-impeller assembly is only moving part—eliminates constant checking.

Get *ALL* the facts...a complete information file—engineering laws, tables, features, applications, and lots more...all in Lamson Billmyre Blower and Exhauster Catalog B-6...*YOURS* for the asking!

LAMSON CORPORATION
2109 Lamson St., Syracuse 1, N. Y.

LAMSON

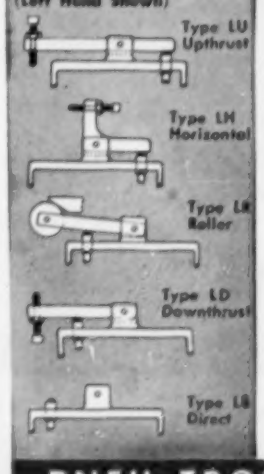
Plants at Syracuse and San Francisco

If you write maker identify as IEN-10041

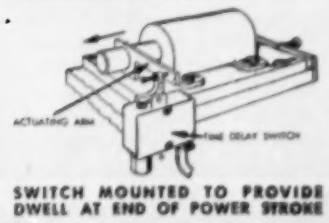
NEW CYLINDER TIME DELAY CONTROL SWITCH

INCREASES APPLICATION . . . WIDENS USE OF CYLINDER POWER

For Any Type Actuation Left or Right Hand (Left Hand Shown)



Pneu-Trol Time Delay Switches provide independent hydraulically controlled adjustable time dwell between ¼ and 60 seconds in 20 to 1 ratios. Readily mounted on machine for cylinder dwell at a positive stop. Compactly designed—a simplified low cost answer to electrical time dwell control of any air or hydraulically operated machine movement such as press work, burnishing, coating, quenching, Metal-cutting, etc. Ideal for automatic feeders.
Dimensions: 4⅛" wide; 2⅝" high; 1-7/16" deep. Overall height 4⅛".



SWITCH MOUNTED TO PROVIDE DWELL AT END OF POWER STROKE

Write for descriptive literature and complete details.

PNEU-TROL DEVICES, INC.
1438 N. Keating Ave. Chicago 51, Illinois

If you write maker identify as IEN-10042

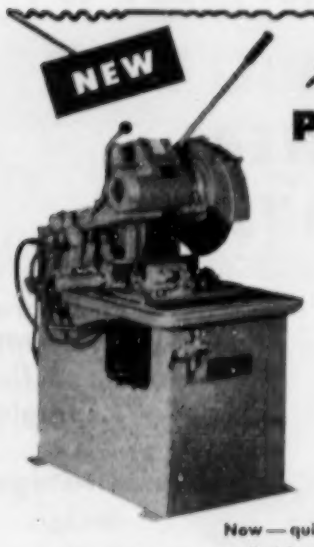
MR. PRODUCTION FOREMAN:

YOU, TOO, WILL BE ASKED THIS QUESTION SOONER OR LATER, BETTER CHECK UP BEFORE IT'S TOO LATE!
WE'LL SEND YOU COMPLETE INFORMATION AND PRICES VIA RETURN AIR MAIL!
Phone, wire or write us RIGHT NOW!

Severance TOOL INDUSTRIES INC.
740 Iowa Avenue, Saginaw, Michigan

If you write maker identify as IEN-10043

NEW



Automatic POWER-FED Cutting Head

for STONE Model M-75

ONE SIMPLE LEVER FOR AUTOMATIC CUTTING

Now — quicker — safer — cutting with controlled feeds, gives even greater efficiency to Stone High-Speed cutting equipment. The automatic feed improves the quality of cut, eliminates operator fatigue, increases production rates and increases wheel life.

You Save up to 25% on wheel costs with power feed!

AVAILABLE AS OPTIONAL EQUIPMENT ON NEW MACHINES OR AS SEPARATE UNIT FOR INSTALLATION ON PRESENT MACHINES.

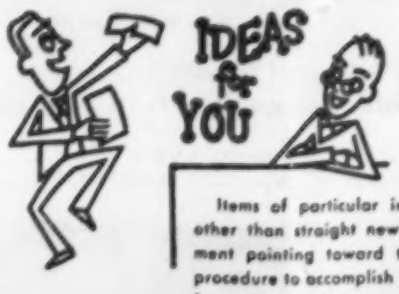
Write Today For Complete Information

STONE MACHINERY CO., INC.
Fayette St. Manlius, N.Y.

If you write maker identify as IEN-10044

FASTENER CORP. 860 Fletcher St., Chicago 14, Ill.

FREE — TELL US MORE about Duo-Fast Tackers for —
Our Business is ____
Company Name ____
Address ____
City ____ State ____



Items of particular interest in the news other than straight new products, development pointing toward the future, unusual procedure to accomplish a point, suggestions for action, each to provide ideas for you.

If you write maker identify as IEN-10045

Die castings made of aluminum and weighing to 75 lb. or zinc castings to 200 lb. can be produced on a new 72-in. die

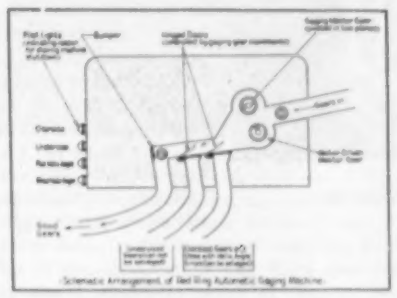
casting machine that has been built and put into production by Doehler-Jarvis Div., National Lead Co., Smead Ave., Dept. IEN, Toledo 1, Ohio. The new machine weighs about 250 ton and will handle dies weighing 50 ton. The 72-in. rating is the distance between the centers of the bars forming the machine frame. Die space is maximum at 66 in. and minimum at 36 inches. Die opening is minimum at 20 in. and maximum at 36 inches. Locking pressure on the die is 2,000 ton. Injection pressure on the metal is 6,200 pounds. The machine occupies a floor space measuring 44 by 10 feet.

If you write maker identify as IEN-10046

Foundrez 7429 and 7581 are two new water soluble liquid phenolic resins for use in making foundry shell molds and cores. The resin is mixed with sand in standard foundry equipment. The shell molds or cores are cured in an oven at 450 to 500 deg. F. in about 30 seconds. The resin manufacturer is Reichhold Chemicals, Inc., 601 Woodward Heights, Dept. IEN, Detroit 20, Mich.

If you write maker identify as IEN-10047

Automatic operation features a new gear gaging and sorting machine into which small gears are fed and directed to outlets in line with the machine's "findings". One outlet receives good gears. The next one takes undersized gears that cannot be salvaged. The third takes oversized gears and those with helix angle errors that can be corrected. The new gage is the first in a new line of Red Ring gear inspecting equipment for automatic operation by National Broach & Machine Co., 5600 St. Jean Ave., Dept. IEN, Detroit 13, Mich.



Schematic Arrangement of Red Ring Automatic Gaging Machine

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10048

Eliminate Shipping Labels!

PRINT DIRECT

Speeds Up Freight Marking

Quick! Accurate! Easy! Print shipping information direct on cartons, boxes, packages. Eliminate double operation of preparing labels and then pasting them to the containers. Get 1,000 or more clear, sharp impressions from one stencil without re-inking. New FORM-CUT® Stencil has facsimile of your label or shipping form die-impressed into the stencil . . . then type or write in address or identification data . . . attach to duplicator . . . and print, like using a rubber stamp. Write for Literature and FREE SAMPLE FORM-CUT STENCIL AND PRINT.

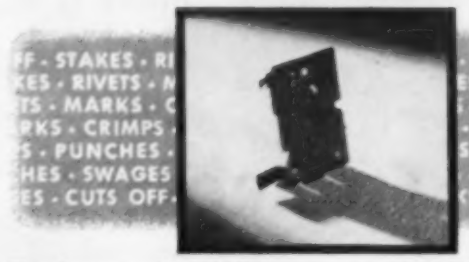
THE ORIGINAL HAND STAMP STENCIL DUPLICATOR

Also for addressing shipping tags and labels . . . prints postcards, menus, forms, bulletins. 8 complete outfits: $9.50 to $99.50, including supplies (f. o. b. factory). At office or shipping room supply dealers.

OVER 30 YEARS MULTISTAMP STENCIL DUPLICATOR

If you write maker identify as IEN-10049

ELECTROSTAKE CUTS COSTS at Eastman Kodak



The Eastman Kodak Company uses ELECTROSTAKE — the automatic solenoid-operated staking machine — to stake shutter parts for Brownie Hawkeye cameras. ELECTROSTAKE presses the assemblies together — then *automatically* delivers the staking blow. Better control of the impact cuts scrap . . . and because ELECTROSTAKE is faster and simpler to use, operators are able to stake far more shutter parts than they could on foot-powered machines.

Delivers impacts up to 3500 lbs. — hold-down pressure can be pre-set from 0 to 20 lbs. Economical to buy, operate and maintain. Plugs into any 115 V., A.C. outlet.

Write — or phone Bigelow 4-6370 — for folder showing complete line of Black & Webster electric production tools.

BLACK & WEBSTER, INC.
Dept. 17, 445 Watertown Street, Newton 58, Mass.
Solenoid-operated Production Tools

If you write maker identify as IEN-10050

New round anode for chromium plating cuts costs

Here's an anode innovation by United Chromium. It has a simple, rugged design that improves operating efficiency and saves money. Here's how:

- Longer service life through less corrosion
- Greater anode activity — gives better current distribution and fewer plating rejects
- Greater rigidity which stops warping

Data sheet LA-2 gives more details. Write.

cut plating plant equipment-costs

WITH TECHNICAL AID

United Chromium plans and supplies specialized equipment for easy operation and economy in plating installations. Technical aid accompanies the line of Unichrome equipment—which includes tanks, blowers, pumps, heaters, filters, anodes and the like.

By taking advantage of United Chromium's unique experience with plating requirements, plating plants assure efficient operations. They also save by avoiding waste of too much capacity, and losses from too little. Requests for quotations are promptly handled.

UNITED CHROMIUM, INCORPORATED
100 East 42nd St., New York 17, N.Y. • Detroit 20, Mich.
Waterbury 20, Conn. • Chicago 4, Ill. • Los Angeles 13, Cal.
In Canada: United Chromium Limited, Toronto 1, Ont.

If you write maker identify as IEN - 10052

● Blast cleaning counter claims fly thick and fast. Here's a simple straightforward statement: "We will guarantee your cleaning costs per unit of work blast cleaned will be at least 15% lower *regardless* of the price you are now paying for chilled iron abrasives!"

Controlled T shot and grit can make this statement—and back it up—because: it deforms before shattering and therefore lasts longer; it does a cutting job without wearing out your blast cleaning equipment, because its BHN is *controlled!*

Write the nearest Hickman, Williams office for proof and a complimentary copy of "A Primer on the use of shot and grit."

National Controlled "T" Shot and Grit is Produced Exclusively by

THE NATIONAL METAL ABRASIVE CO. • Cleveland, Ohio
WESTERN METAL ABRASIVES CO. • Chicago Heights, Illinois
AND SOLD EXCLUSIVELY BY
HICKMAN, WILLIAMS & CO.
(INCORPORATED)
CHICAGO • DETROIT • CINCINNATI • ST. LOUIS • NEW YORK
CLEVELAND • PHILADELPHIA • PITTSBURGH • INDIANAPOLIS

If you write maker identify as IEN - 10053

Write for bulletins on this rugged money-saving materials-handling equipment

Phillips equipment has proved its merit in thousands of applications everywhere. Ruggedly built and well designed, it withstands hard usage for longer periods. You'll profit by having Phillips literature on file.

Phillips
CORPORATION
(formerly Phillips Mine & Mill Supply Co.)
Manufacturers Since 1863
15 Arch Street, Carnegie, Pa.

IDEAS for YOU—*Continued*

If you write maker identify as IEN - 10055

A medical student at the University of Cincinnati has come up with a simple solution to the difficult problem of removing a plaster cast that has been used to hold a leg or arm or other piece of human anatomy in place while it healed. The solution consists of placing stainless steel wires along two sides of the cast when the cast is first put in position. These wires are rolled up from one end by a winch-like hand tool so they rip through the cast with very little effort. The cast comes off in two separate pieces, after both wires have been removed. There is no dust, noise or danger to the patient. Duxe Products, 205 Keith Bldg., Dept. IEN, Cincinnati 2, Ohio, manufactures the removing tool and can supply the stainless steel wire.

If you write maker identify as IEN - 10056

Pyramid Screen Co., 45 Radnor Road, Dept. IEN, Brighton 35, Mass., announces its appointment as exclusive United States selling agents for the line of high speed twist drills manufactured by Societe Dusse of Paris, France. Standard drills are in stock in straight shank, jobbers or short lengths in multiples of 1/64 in. from 3/64 to ½ in., in wire gages from No. 1 to 60 and in letter gages from A to Z. The company is also prepared to supply special drills to order.

If you write maker identify as IEN - 10057

T. F. Washburn Co., 2244 N. Elston Ave., IEN, Chicago 14, Ill., has developed a new material, known as Burnok, for application in paint. The new material turns oil base paints into a thick jelly-like consistency that never has to be stirred, will not sag, curtain or bead and that will spread without difficulty. A can containing the paint can be held upside down and the paint will not spill out. The company will supply a list of paint manufacturers now producing jelled paint.

If you write maker identify as IEN - 10058

Eight load wheels, arranged in dual tandem design, are now employed in the company's rider type electric low lift pallet truck for operation in narrow aisles. Each wheel measures 3¼ in. in diameter and has a face width of 2¼ inches. The eight wheels provide sufficient bearing surface to minimize both wheel and floor wear. They are articulated to insure contact over uneven surfaces. Raymond Corporation, 35-123 Madison St., Dept. IEN, Greene, N. Y., is the manufacturer.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10059

ROBINSON METERING PUMPS

FORCIBLY EJECT EXACT METERED AMOUNTS OF:

ASPHALT • RESIN • PITCH • ROSIN ADHESIVES • STEARIC ACID and PLASTER OF PARIS • PORTLAND CEMENT AND VARNISH MIXTURE • SEALING COMPOUND • POLYAMIDE • PLASTISOL PASTES • GLYPTAL MIXTURES • RUBBER BAKELITE

Melt and meter materials that are solid at normal temperatures. Easy ejection through tiny apertures.

Any of 20 discharge quantity settings can be changed in 2 seconds (one model has 50 settings) without tools.

Eject accurately .04cc to 370cc in 2/3 second.

Thermostatic heat from 70° to 500° F . . . Viscosities from #10 S.A.E. oil to 200,000 centipoises.

Unskilled operators quickly learn to do neat, clean work.

The versatile Robinson Metering **Pumps may be the** *economical* **solution to one of your production problems. Write for free folder.**

EDWARD E. ROBINSON
INCORPORATED
P.O. Box 47
95 PARK AVE. • NUTLEY 10, NEW JERSEY
Telephone NUtley 2-4510

If you write maker identify as IEN - 10060

For All Sheldon Lathes less than 5 Years old . . . we have just published a new Parts List Manual, with:

. . . . every lathe part and sub-assembly illustrated, named, numbered and positioned on explanatory exploded drawings.

. . . . a section which illustrates and describes each of over 50 modern Attachments and Accessories to make your Sheldon Lathe even more versatile, productive and valuable to you.

To get this valuable Parts List (and Accessory) Manual just write (1) the serial number of your Sheldon Lathe and (2) your name, and (3) your firm name and address, on a post card, letterhead, billhead or slip of paper and mail it to "Parts Manual"

SHELDON MACHINE CO., INC.
4208 North Knox Ave., Chicago 41, Illinois

If you write maker identify as IEN - 10061

You can MEASURE the ROUGHNESS of practically ALL surfaces

(internal and external—flat, round, and tapered)

with the PROFILOMETER®

(quickly—dependably—in the shop—in microinches)

. . *thereby saving time and money in unexpected ways!*

FREE BULLETIN LT89 gives details—shows production and quality control applications. Write for it!

Profilometer is a registered trade mark

MMC
MICROMETRICAL MANUFACTURING COMPANY
345 S. MAIN ST. • ANN ARBOR 1, MICH.

If you write maker identify as IEN - 10062

CAN WE PACK IT TO CUT YOUR COSTS?

BESIDES MAKING enormous quantities of high carbon wire, Roebling has developed special packing methods . . . and *one* of these, (or some other designed specifically for you), might save real time and money in your plant.

Certain wires, for example, can be packed in fibre drum packs that facilitate handling and storing. These packs don't have to be returned . . . they save you bother, storage space and freight charges.

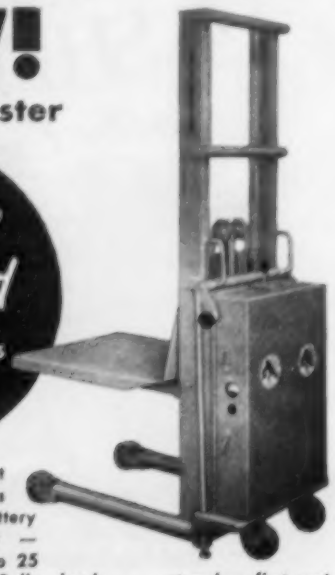
When you buy high carbon wire make sure you get the best, in wire and packing too. Specify Roebling. John A. Roebling's Sons Corporation, Trenton 2, N. J.

ROEBLING CF&I
Subsidiary of The Colorado Fuel and Iron Corporation

If you write maker identify as IEN - 10063

NEW!

L-S Handy Hoister



Battery Powered

...for faster lifts at lower cost

Lewis-Shepard's newest Master Line Materials Handling Truck — the Battery Powered Handy Hoister — provides lift speeds up to 25 feet per minute with 1000 lbs. loads . . . at a low first cost. Perfect for stacking dies, jigs and fixtures, drums, etc., where cost of an expensive power truck is not justified. Storage battery has built-in charger . . . can be recharged from any lighting circuit. Other features include 58" lift height. Single control lever for lifting and lowering. Available in either platform or straddle-type fork lift models.

WRITE TODAY FOR FULL INFORMATION

LEWIS-SHEPARD

933-9 WALNUT ST., WATERTOWN 72, MASS.

The "MASTER" Line

If you write maker identify as IEN - 10064

Wheeler LIGHTING FIXTURES

A BASIC PRODUCTION TOOL OF AMERICA'S LEADING INDUSTRIES

In industry after industry . . . where modern progressive thinking rules . . . Wheeler Lighting Fixtures are the logical choice for maximum lighting efficiency!

WHEELER REFLECTOR COMPANY
275 CONGRESS STREET, BOSTON 10, MASS.

DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

If you write maker identify as IEN - 10065

SAVE 50% on ROOF REPAIR

FREE BOOK SHOWS HOW

90% of Leaky Roofs Can be *Saved*

Cut Costs in HALF with Unskilled Labor

There are no secrets or special skills to good roof repair! Free step-by-step book shows exactly how to recondition roofs . . . to give 90% of leaky roofs extra years of weather-tight life . . . to do the job right with unskilled labor at HALF the cost. Your business letterhead request brings "Saving Old Roofs" free. Write today!

THE TROPICAL PAINT & OIL COMPANY
1126-1280 W. 70th • Cleveland 2, Ohio
HEAVY-DUTY MAINTENANCE PAINTS SINCE 1883

If you write maker identify as IEN - 10066

Crane - For a wrecking truck, rates 5 ton on power take-off drive

Source: AMERICAN CHAIN & CABLE CO.
929 Connecticut Ave., Dept. IEN, Bridgeport 2, Conn.

Utility equipment

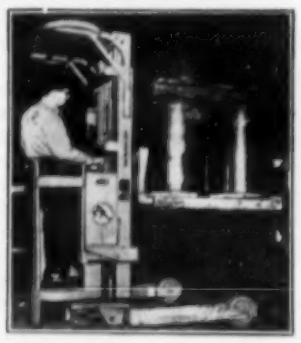
Type WC-5 is a new 5-ton non-swinging crane for loading and unloading operations and to lift and tow motor vehicles. It employs a single part ⅜-in. wire rope 100 ft. in length for the load line and a similar ⅜-in. wire rope to position the boom vertically. The load line carries a side opening snatch block. The drive terminates in a propeller shaft with universal joints for connection to the power take-off on the truck.

Control centers at side levers. The equipment weighs 832 lb. and is available in two boom lengths, one for truck bodies measuring to 96 in. in length and one for trucks measuring 8 ft. or more. The new unit completes a line now containing seven models with lift capacities ranging from 3 to 8 ton.

If you write maker identify as IEN - 10067

Truck - Motor driven fork lift for handling, loading, storing duties

Source: LEWIS-SHEPARD
125 Walnut St., Dept. IEN, Watertown 72, Mass.



Safety assured

Model M is new design of the company's Space Master line of trucks in which drive is by a turret assembly located on one side at the rear beside a stabilizing caster wheel idler. The arrangement permits turning the truck in a short radius for operation in narrow aisles. High-lift models in the line rate 1 and 1½ ton. Low-lift models rate 2 ton. Both are provided with three speeds in forward and reverse.

New construction permits side entry for the operator and assembles a guard above his head as well as a "wrap around" compartment of reinforced steel to shield him against collision. A new electric foot brake goes into action when the operator releases pressure on his left heel. New dual caster wheels and tandem load wheels provide support to the load carrying frame for high stacking operations. The wheel arrangement minimizes floor wear, assures load distribution.

If you write maker identify as IEN - 10068

Percent-Eze is a new plastic calculator, 9 in. in diameter, to figure scaling and proportioning problems. It is made of Vinylite plastic with the markings laminated beneath a clear surface. List price is $10. Manufacturer is Robertson Photo-Mechanix, Inc., 3067 Elston Ave., Dept. IEN, Chicago 18, Ill.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10069

Space Savers

SPLIT BALL BEARING BUSHINGS

. . . giving both radial and thrust capacity

They have solved many design and operation problems. . .

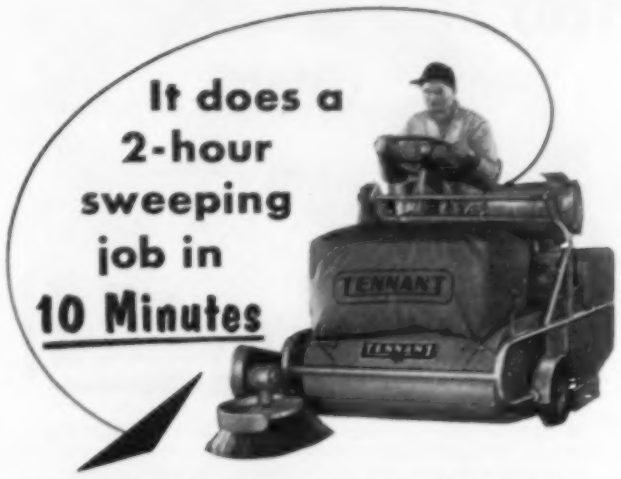
SHEAVES FULCRUMS IDLERS
CAMS OSCILLATING MOTIONS

Shaft rotation at moderate speeds.
Lubricated for extended operation.
Only a quarter inch section height.
For shafts from 7/16" to 1½".

Ask for folder giving sizes and load capacities. Call on our Engineering Department for advise and help on your applications.

SPLIT BALLBEARING CORP.
LEBANON NEW HAMPSHIRE

If you write maker identify as IEN - 10070



Faster than a 3 to 12-man crew, this NEW Tennant Sweeper cleans a 48" path, usually does a 2-hour handsweeping job in 10 minutes.

Has these exclusive features: reverses instantly . . . requires only 3 controls for 95% of the work . . . can dump 700 lb. load in 30 seconds. All moving parts 100% protected against grit. EXTRA-rugged and *built to last 2 to 3 times longer* than other industrial sweepers. Gas or electric; 24" to 48".

Write for details.

TENNANT ESTABLISHED 1870

G. H. TENNANT CO.
2574 N. 2nd Street
Minneapolis 11, Minn.

POWER SWEEPERS

If you write maker identify as IEN - 10071

au´to.ma´tion, *n.* Mechanized, automatic handling of materials and parts-in-process, using custom designed production and conveying equipment to match the speed of modern automatic processing machines.

EXAMPLE: Tilt Stand fabricated for American Hard Rubber Co. to handle heavy reels of rubber and aluminum strip resulted in improved production efficiency and eliminated hazardous manual handling.

If you are considering automation—check with Associated Metal Fabricators. We have shared in the design and fabrication of automation equipment for many leading companies. Our engineering assistance is yours for the asking.

NEW "Custom Fabricating for Industry" describing AMF's production and engineering skill for Special Machinery • Industrial Tanks and Ovens • Automation Production Aids. Write for your copy.

ASSOCIATED METAL FABRICATORS
Division of Jersey Sheet Metal Products, Inc.
18 SEBAGO ST. • CLIFTON, N. J. • GREGORY 3-7474
MAF 1937

If you write maker identify as IEN - 10072

temperature conversion tables

FREE C to F and F to C

. . . stops guesswork on surface temps. The PANDUX gives linear thermal readings to ±2° full-scale accuracy. Unit sealed against corrosive atmospheres. Mirror dial protects element against external radiation. Easy to affix to surfaces with magnet or silicone grease. 2" in diameter; weighs 1 oz. Fully guaranteed. Specify model wanted.

Order today.

For checking: ■ Pipes and ducts ■ Dies and molds ■ Freezers, ovens, boilers ■ Ceilings, walls and floors ■ Motors and cylinder blocks ■ Bearings and journals ■ And hundreds of other vital uses

ONLY **$6.75** Complete with magnet clamp and 1/2 oz. of silicone grease.

Model 309F:	−50°F to 250°F
Model 309C:	−50°C to 110°C
Model 310F:	0°F to 300°F
Model 310C:	−10°C to 150°C
Model 311F:	70°F to 370°F
Model 311C:	20°C to 180°C

Write for FREE Temperature Conversion Chart No. IE94

PACIFIC TRANSDUCER CORP.
11921 W. Pico Blvd. — Los Angeles 64, California

If you write maker identify as IEN-10073

NEW Improved TOLEDO Simpact

1" to 2" Self-Contained Ratchet Threader

WITH CAM-TYPE PIPE HOLDER

★ *Improved* cam-type quick-action pipe holder has broader jaws for more positive grip on pipe.

★ Free action cam assures instant setting to any size—1" to 2".

★ Easy to center . . . you get perfect aligned threads.

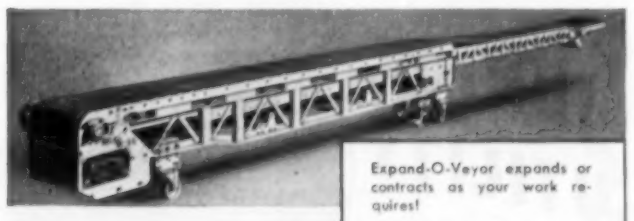
★ Fewer moving parts . . . minimum wear . . . light in weight. Amazingly compact . . . will thread a pipe projecting through a wall as short as 6¼".

★ Accuracy proven through the years . . . dies recede along tapered steps. A fine quality tool—yet low in cost! Write for new catalog. Order through your supply house. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

RELY ON THE LEADER! **TOLEDO**

PIPE TOOLS . . POWER PIPE MACHINES
POWER DRIVES

If you write maker identify as IEN-10074



Expand-O-Veyor expands or contracts as your work requires!

Eliminates lost time caused by shifting equipment!

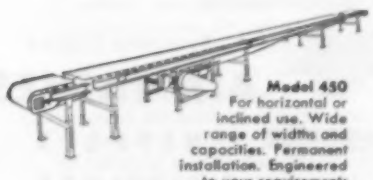
Where can *you* use this new FARQUHAR Package-Handling *EXPAND-O-VEYOR*?

Use this new Farquhar Expand-O-Veyor at maximum length settings one day . . . at minimum the next day. Ideal for use on the end of a fixed conveyor system, permitting the discharge point to be varied without moving your entire line. Perfect for loading and unloading trucks—can be shortened or expanded as the truck becomes loaded or emptied. Get more information about this new Expand-O-Veyor's versatility today. Write to the address shown below, telling us what you move. There's no obligation, of course.

FARQUHAR HAS CONVEYORS FOR EVERY PURPOSE

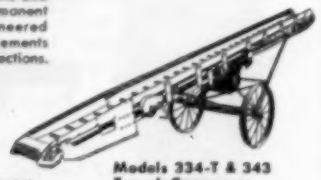
Model 431
Rugged, medium duty package-handling conveyor. Portable or fixed units. Horizontal or inclined. Various mountings.

Models 436 and 438
For light or medium duty. Permanent or portable installations. 12" to 18" belts.



Model 450
For horizontal or inclined use. Wide range of widths and capacities. Permanent installation. Engineered to your requirements from standard sections.

Gravity Conveyors
Roller or Wheel type. Black velvet or Standard finish.



Models 334-T & 343 Trough Conveyors
For handling bulk, abrasives, powders, aggregates, etc., as well as small bags and bundles.

OLIVER Farquhar CONVEYORS

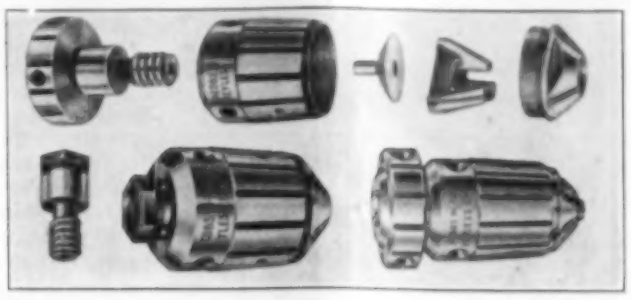
FREE! "Owners Report"—a booklet of case histories describing money-saving Farquhar conveyor installations. Write: THE OLIVER CORPORATION, A. B. Farquhar Div., Dept. S-32, York, Pa.

POWER-BELT & GRAVITY CONVEYORS

If you write maker identify as IEN-10076

Chuck - Keyless design for portable tools, 1/4 and 5/16 in. sizes

Source: JACOBS MFG. COMPANY
Jacobs Road, Dept. IEN, West Hartford 10, Conn.



No key to lose

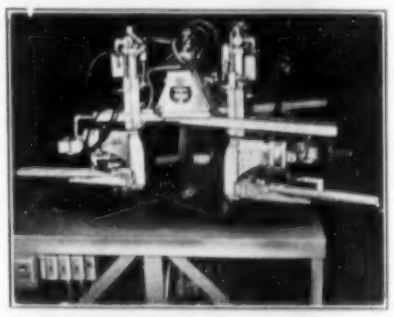
Hi-Torque Keyless designates a new chuck for portable tools. It can be opened and closed by hand without need for a key. The chuck is similar in its internal construction, with exception of the impact mechanism, to the impact keyless design, previously described IEN-7323-54. It is available in ¼ and $\frac{5}{16}$-in. capacities. It measures $1\frac{9}{16}$ and 1⅝ in diameter.

Two models include one with a collar for use on portable tools that do not have spindle locks and one, from which the collar has been omitted, for spindles that can be locked. The chuck is released and closed by turning the main body on the threaded adaptor. The self-tightening action of the Rubber-Flex collet assists in holding a drill for normal operation. The collet does not offer any resistance to releasing the chuck by hand. Collets can be interchanged or replaced after unscrewing the chuck nose.

If you write maker identify as IEN-10077

Stapling - Automatic machine secures the lid on an octagon carton

Source: INTERNATIONAL STAPLE & MACHINE CO.
809 E. Herrin St., Dept. IEN, Herrin, Ill.



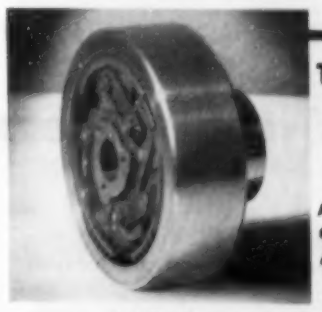
Special Model OTC

Filled cartons, measuring 26 to 54 in. across the outside flaps and provided with 6 to 20-in. square inside openings, are fed to the indexing table in the center of this new machine. The machine takes cartons measuring ⅜ to 2 in. in height. It employs three power operated stapling heads, in staggered arrangement, to place and drive the staples as the carton is turned by the indexing action.

A cycle is started after the operator has placed a filled carton with the lid in position and has pressed a switch button. This button closes a circuit to actuate centering arms in the indexing table and position the carton on the table. Then the operator depresses a foot switch and the machine automatically forms its sequence of indexing and stapling operations. It retracts when all of the staples have been driven so the carton can be pushed off and a new one put in its place. The heads are equipped with warning bells to indicate need for staple reloading.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10078



THE *New* HILLIARD TWIFLEX

AUTOMATIC CENTRIFUGAL CLUTCH COUPLING *with* *Flexible* ACTION . . .

NEW Important Features

1. Flexible in all directions.
2. Absorbs shock.
3. Limits torsional vibration.
4. Has adjustable idle speed.
5. Smooth starting.
6. Available in automatic free-wheeling type.
7. No slip under normal load at full speed.
8. Available in automatic backstop type.
9. Protects driver and driven mechanisms against overload shock.
10. Prevents torsional resonance.

If you have problems of misalignment - smooth starting - vibration - overload - or assembly in the manufacture or operation of:

- COMPRESSORS
- BLOWERS
- DIESEL ENGINES
- EXCAVATORS
- GASOLINE ENGINES
- TEXTILE MACHINERY
- WIRE DRAWING
- BALL MILLS
- ELECTRIC MOTORS
- GENERATORS

Let our engineers consider your problems. TWIFLEX may be the answer.

• The HILLIARD line of clutches •

Over-Running	Single Revolution	Slip
Dual Drive Two Speed Drive Ratchet Feed Backstop	Controlled intermittent motion; accurate, positive, no slip, automatic.	Overload protection Constant tension Winding and reeling
Write for Bul. 231	Write for Bul. 238	Write for Bul. 300

THE HILLIARD Corporation • 100 W. 4th St., Elmira, N. Y.

If you write maker identify as IEN-10079

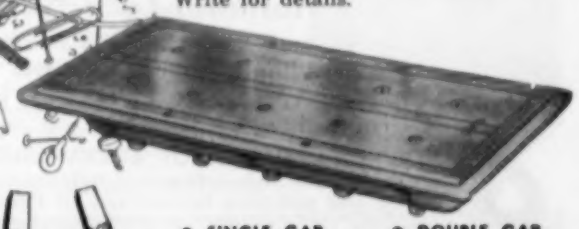
it's never too early for magnetic protection . . .

PRATER PERMANENT MAGNETS

are recommended for installation — **today** — before uncontrolled tramp iron is allowed to play havoc with your equipment.

PRATER PERMANENT MAGNETS, readily attached to hoppers, spouts or chutes, reach deep into the flow to weed out these destructive metals, increase operating efficiency and safeguard life and property. Each installation is specific as to type, size and arrangement of magnets, as specified by your requirements.

Write for details.



• SINGLE GAP • DOUBLE GAP
• HEAVY DUTY • HUMP CHUTE

PRATER PULVERIZER COMPANY
1536 S. 55th Court • Chicago 51, Ill.

PRATER

If you write maker identify as IEN-10080

AEROQUIP *SOCKETLESS* FITTINGS make hose line replacement *amazingly easy*

Make hose assemblies by just pushing Aeroquip 1525 hose on the socketless fitting. Hand pressure does it, and the fittings stay on for keeps, thanks to unique design features.

Aeroquip socketless fittings are the last word in one-piece simplicity. They are specially designed to work with Aeroquip 1525 triple-ply, cotton-reinforced hose.

Sizes are ¼, ⅜, ½ and ⅝" . . . ideal for fuel, air, water and oil lines. See your distributor, or write for information.

Aeroquip

AEROQUIP CORPORATION, JACKSON, MICHIGAN

FLEXIBLE HOSE LINES • DETACHABLE, REUSABLE FITTINGS • SELF-SEALING COUPLINGS • BREAKAWAY COUPLINGS • HYDRAULISCOPE

AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

If you write maker identify as IEN-10081

NEW STRAPPING TAPE

Brainard now offers complete service—steel strapping and strapping tape

• The Brainard Strapping System, comprising a complete line of steel strapping, tools, and accessories, has now been expanded to include strapping tapes, both pressure-sensitive and gummed, and dispensers for all applications. The tapes are filament-reinforced to provide high tensile strength, and are designed for strapping applications. Brainard is the first company to offer both strapping methods. Brainard can give you unbiased recommendations on the best method for your applications. Most shipping departments and packaging lines can use both steel strapping and strapping tape to advantage.

Brainard

For booklet write
BRAINARD STEEL DIVISION
Dept. H-9, Griswold Street
Warren, Ohio

If you write maker identify as IEN - 10082

HOBBS

COTTER PINS

LOXIT
Extended Prong

HOBLOK
Hammer-Lock Type

Locks itself when hit with hammer!
No bending of prongs required!

Choose the type that's best for *your* production job! Both are available in steel, brass, stainless steel, and monel.

HOBBS "TANGLE-PROOF" LOCKWASHERS are available in high carbon steel, stainless steels, silicon and phosphor bronze, and all types of platings.

Write now for Hobbs lock washer and cotter pin price lists!

HOBBS MANUFACTURING CO.
Fastener Division
40 SALISBURY ST., WORCESTER 5, MASS.
EST. 1902

If you write maker identify as IEN - 10083

NO COMPETITOR DARES COPY

Your Name Plate

Make it WORTHY Of Your Product

As the maker's "signature," your name plate is one thing that can set your product apart from all others. Make it *distinctive*, and let it reflect the quality you offer.

Let us help you create such a "signature." Our skilled craftsmen, long experience and modern equipment insure finest results. Send a rough sketch or blueprint for design suggestion and quotation.

Write now for "Etched or Lithographed Metal Products," with full color examples of name and instruction plates.

CHICAGO THRIFT-ETCHING CORPORATION
1555 N. SHEFFIELD AVE., CHICAGO 22, ILL., DEPT. F
SUBSIDIARY OF DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

If you write maker identify as IEN - 10084

on the job with

INVINCIBLE VACUUM CLEANERS

at Cleveland Electric Illuminating Company

Invincibles form an important part of the "cleaning fleet" at this utility. At the C.E.I. warehouse illustrated, an Invincible Model 450 is used daily to keep floors and bins free of dust and dirt.

In all industries, Invincibles give the same reliable service, providing healthful and efficient working conditions.

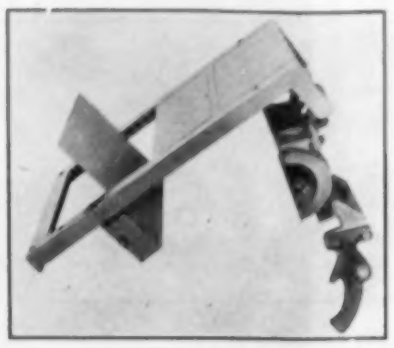
WRITE FOR FREE BULLETIN

INVINCIBLE VACUUM CLEANER MFG. CO.
Dover, Ohio

If you write maker identify as IEN - 10085

Separating - Permanent magnet unit removes tramp iron from flow in chute

Source: STEARNS MAGNETIC INC.
626 S. 28th St., Dept. IEN, Milwaukee 46, Wis.



Mounts below chute

Permanent magnets are mounted as a part of a hinged assembly in this new separator for application in a sloping chute. The mounting plate that forms the bottom of a section of the chute carries a weighted hinged gate. This gate opens, as shown in the illustration, to block flow through the chute when the magnet elements are hinged downward out of operating position on the chute.

The gate closes when the magnets are returned and locked in operating position. Tramp iron, that has been separated from the flow, drops through the gate opening as soon as the magnets are pulled away. The separator is available in specified sizes and magnetic capacities.

If you write maker identify as IEN - 10086

Protecting - Green plastic goggle for spot welders and arc weld helpers

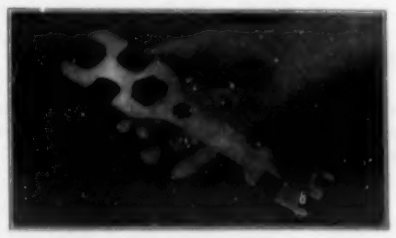
Source: CHICAGO EYE SHIELD CO.
2300 W. Warren Blvd., Dept. IEN, Chicago 12, Ill.

Prevents "flash"

The plastic employed in the frame of this new goggle contains an inhibiter that prevents fogging, crazing and development of brittleness when subjected to ultraviolet rays. The goggle is available with a round or flat elastic head band. It can be worn over prescription glasses and is fitted with 50-mm. clear Super-Safety, Anti-Glare or Cescoweld lenses. Designation is 548-G with the round head band and 549-G with the flat band.

If you write maker identify as IEN - 10087

Illustrated is a typical special die cut wrench, available in small lots with negligible tooling costs. The wrench is typical of work the company is prepared to do to specification. The design shown costs $210 for the first 100. Each subsequent hundred costs $70. Dayton Rogers Mfg. Co., 2828 13th Ave., Dept. IEN, Minneapolis 7, Minn., can give you fast action.



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If you write maker identify as IEN - 10088

FASTER, MORE ACCURATE INSPECTION WITH

FLASH-O-LENS Illuminated Magnifiers

In industrial inspection departments, on production lines, in foundries and laboratories, wherever close visual inspection is important, FLASH-O-LENS gets the job done better, faster. FLASH-O-LENS spots minute defects by spotlighting the area it magnifies.

Battery models, powered by standard flashlight cells, and AC-DC plug-in models are available with 5, 7, 20 or 40 power precision lenses to meet a wide range of inspection needs. Prices start from $10.65.

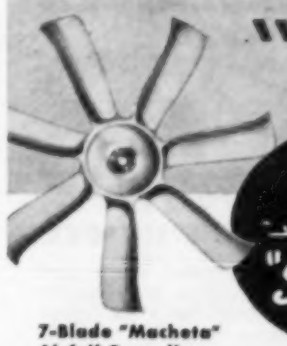
PIKE REG. U. S. PAT. OFF.

WRITE TODAY for literature showing applications, types, prices.

E. W. PIKE & COMPANY, Inc.
492 NORTH AVENUE ELIZABETH 3, N. J.

If you write maker identify as IEN - 10089

performance is in the "prop"



NEW Aerovent "Semi-Pressure" FANS

7-Blade "Machete" Airfoil Propeller

Now get top efficiency against resistances to 4½" SP *without* special equipment! Standard Aerovent units with new 7-blade propellers move more air at *slower* motor speeds with *less* horsepower. Write for folder.

Ask for bulletin S-50!

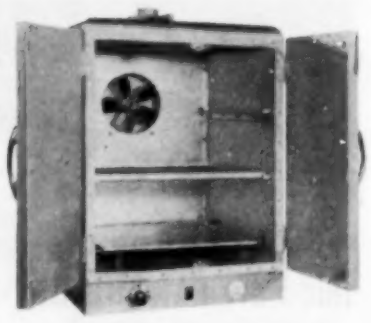
All Aerovent Fans are rated in accordance with the Standard Test Code and U.S.D.C. Comm. Std. CS178-51.

Aerovent Fan Company, Inc.
Ash and Brown Streets Piqua, Ohio

If you write maker identify as IEN - 10090

NEW! VALUE PACKED!

JUNIOR UTILITY OVEN



LOW COST · EASY TO OPERATE · MINIMUM MAINTENANCE

Ideal for

- DRYING
- BAKING
- CURING
- PROCESSING
- HEAT TREATING

Here is a new line (4 models, temperature ranges up to 1000°F.) that incorporates every possible advantage of experienced oven design. Use the Jr. Utility Oven for economical manufacturing, product control, sample testing, etc. External dim. 24" x 24" x 34" high. Handsome gray hammertone finish. Write for complete data on new, advanced features.

NEW ENGLAND OVEN & FURNACE CO.
POST ROAD, ORANGE, CONN.

If you write maker identify as IEN - 10091

ORIGINAL BOWES COUPLINGS
• POSITIVELY LOCKED
• INSTANTLY CONNECTED

Pressure Seated
AIR VALVES
NIPPLES
FITTINGS
BLOW GUNS

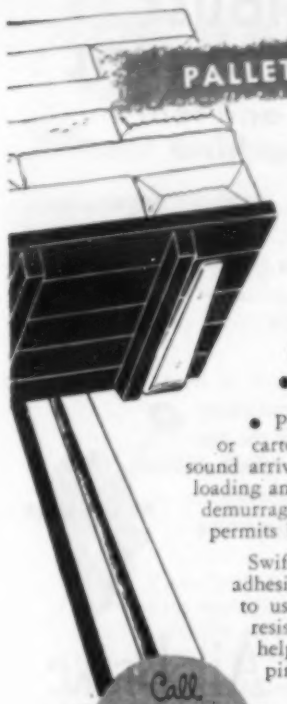
All your airline requirements at one source

U.S. BOWES COUPLINGS

...Write for new catalog describing complete line.

UNITED STATES AIR COMPRESSOR COMPANY
5300 Harvard Avenue Cleveland 5, Ohio

If you write maker identify as IEN-10092



PALLETIZE WITH . . .

SWIFT'S PALLETITE ADHESIVES

- RESISTS HORIZONTAL SHIFTING
- POPS CLEAN ON VERTICAL PULL
- ONE GALLON DOES A CARLOAD!

• Palletizing or unit loading of bags or cartons is good insurance for safe, sound arrival of your merchandise. It speeds loading and unloading, reduces handling and demurrage costs — facilitates inventory and permits better use of warehouse space.

Swift has a versatile team of Palletizing adhesives that are ready, and economical, to use. *All* are non-skid and moisture resistant; one of them probably can help you save *real* money in your shipping department.

Write for information, today!

Call Swift for ADHESIVES

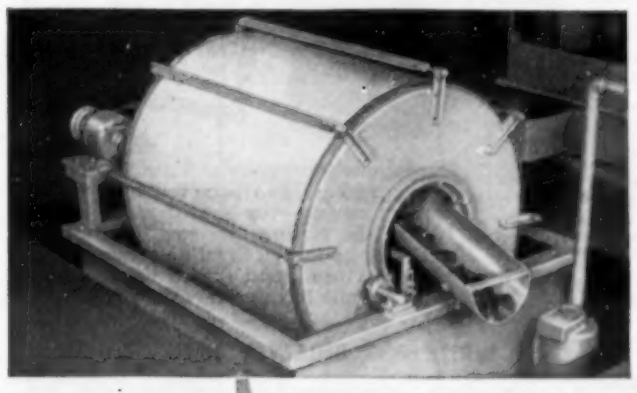
SWIFT & COMPANY
ADHESIVES PRODUCTS DEPT.
4115 PACKERS AVE.
CHICAGO 9

Another of Swift's Products for Industry

If you write maker identify as IEN-10093

The MURRAY WAY

INDUSTRIAL FILTER



a revolutionary development in solution reclamation that gives you these money-saving features!

- **AUTOMATICALLY OPERATED**
- **SELF-CLEANING**
- **ECONOMICAL**
- **COMPACT**
- **ADAPTABLE**

The Murray-Way Industrial Filter automatically rotates fresh filtering area into position while simultaneously ejecting the contaminant. With this new unit costly consumption of throw-away filtering media is eliminated since the wire filtering screen has many times the life of cloth filtering webs.

The Murray-Way Industrial Filter is a compact unit. It offers unusually great filtering capacity in proportion to area occupied. Amazingly adaptable, the Murray-Way Filter may be used with an individual machine unit or as a central filtering station for many units. Capacity of filtration may be easily increased by adding filters in tandem—separately or in the same tank, to meet requirements. A selection of filtering screen material and size of screen opening can be supplied in monel, stainless steel, brass or bronze to fit your requirements.

For technical details of operation—write for Bulletin F-5301.

other Murray-Way equipment

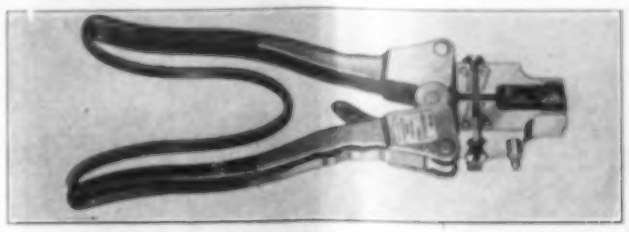
- Micro-Polish Equipment
- Polishing and Buffing Conveyors
- Automatic Dial Tables
- Standard and Special Polishing Heads
- Specially Engineered Automation
- Automatic Loaders and Unloaders

MURRAY WAY CORPORATION
POST OFFICE BOX 180—BIRMINGHAM, MICH.
AUTOMATIC POLISHING, BUFFING, GRINDING, FILTERING EQUIPMENT

If you write maker identify as IEN-10095

Welding - Plier type tool to butt weld wire by pressure only

Source: UTICA DROP FORGE & TOOL CORP.
2415 Whitesboro, Dept. IEN, Utica 4, N. Y.



No operator skill is required

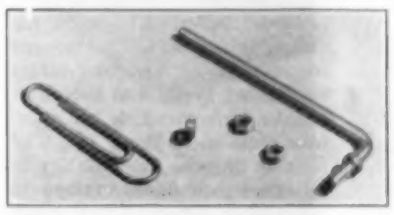
Type KB-14 and KB-14B are new Buttweld plier type welding tools. The two tools represent further development of the plier type unit, previously described IEN-13840-52, in which aluminum or copper wire can be butt welded by pressure alone. Each tool weighs 5 lb. and measures 14 in. in length. List price of $825 includes payment of the required license from Koldweld Corporation of New York to use the tools as sold.

Type KB-14 will handle copper wire from No. 14 to No. 11 gage. It will weld aluminum and aluminum to copper wire in a range from No. 14 to No. 8 gage. Type KB-14B will weld aluminum and copper in a range from No. 18 to No. 16.

If you write maker identify as IEN-10096

Fastening - Socket set screw for instrument use, splined drive

Source: BRISTOL COMPANY
107 Bristol Road, Dept. IEN, Waterbury 20, Conn.

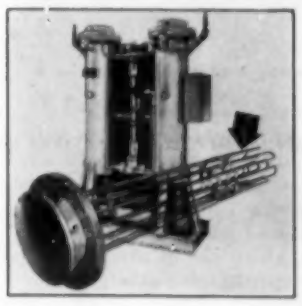


Other sizes to order

New screw, or locking ring, is available in No. 8 size. It is made of cadmium plated steel and is through broached so it can be tightened or loosened from either end. The screw can be fed automatically with either end up. It was initially designed for use in guided missile assembly.

If you write maker identify as IEN-10097

Illustrated is a "built to order" assembly of an electric immersion heating element that provides a large heating surface at a low watt density to drive the moisture from desiccant employed in drying instrument air. The heating element is made up of a number of return bend electric tubes assembled into a header. It is representative of special electric elements manufactured by Heatube Corporation, Dept. IEN, Allegan, Mich. The company will send you its catalog IEN-54 on request.



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If you write maker identify as IEN-10098

First Choice **LIVERMONT TORQUE WRENCHES** for every industrial use

LIVERMONT TORQUE WRENCHES are years ahead — in streamlined design, in rugged construction, in hair-line accuracy, dependability and range of capacities. There are no clumsy, external gauges or "gadgets" to hamper use of Livermont tools . . . Patented, torque controlling mechanisms are self-contained. So Livermont wrenches are balanced — as easy to use as conventional wrenches.

No matter what your torque requirement — from one inch-ounce to 5000 inch-pounds — there is a Livermont tool to solve the problem.

(Right) Livermont's new "HI-LO TORQ." Only torque wrench on the market with adjustable and reversible ratchet head! 16 models. 10 to 500 foot pounds. Also plain square drive.

(Left) Livermont's new "ROTO-TORQ." A screwdriver that torques down to 4 inch-ounces. A precise, dependable, long-life tool for electronics or similar assemblies. Fits over 50 standard bits and sockets.

Write Dept. IEN for illustrated price catalog. Over 100 styles, models and capacities.

RICHMONT, INC. "The Home of Torque"
922 S. MYRTLE AVE., MONROVIA, CALIFORNIA

If you write maker identify as IEN-10099

TREET-ALL the **HEVI DUTY** *Multi Purpose* **FURNACE** for TOOL ROOM AND EXPERIMENTAL HEAT TREATING

With a maximum temperature of 1850° F., the TREET-ALL can easily handle your scale free hardening, carburizing, dry cyaniding and silver brazing.

The alloy muffle and gasketed door form a tight seal which simplifies atmosphere control. The furnace, quench tank, cabinet and controls form a compact, completely wired unit.

Write for Bulletin HD-1147-BB

HEVI DUTY ELECTRIC COMPANY
HEAT TREATING FURNACES HEVI-DUTY ELECTRIC EXCLUSIVELY
DRY TYPE TRANSFORMERS — CONSTANT CURRENT REGULATORS
MILWAUKEE 1, WISCONSIN

If you write maker identify as IEN-10100

The Velocity-Power DRIVER'S exclusive integral CARTRIDGE—PISTON—STUD UNIT

Lets you load faster • Shoot safer

There's no time wasted matching loads and studs, no chance of dangerous mismatching with the Velocity-Power Driver. Our studs are factory assembled—you get cartridge, piston, stud as one unit—right for the job—ready to go! Cartridge heads are color tipped for load identification; center-fire cartridges add an extra margin of safety. Write for complete details.

VELOCITY POWER TOOL COMPANY
201 North Braddock Avenue
Pittsburgh 8, Pa.

If you write maker identify as IEN-10101

Cut Crane Runway Maintenance!

This folder tells you HOW

● If you are having maintenance problems with your present crane or runway, or if you're planning a new installation, this folder is a "must." It describes in detail our three Special Crane Rail Sections, which were designed to give longer life under heavy wheel loads. And it shows a special technique of tight-joint-assembly which, when combined with a new conception of "floating-rail" fastening, will result in fewer delays in crane operation and less costly crane and crane runway maintenance.

Get *your* copy now. Just send your name and address to *United States Steel Corporation*, Room 4449-J, 525 William Penn Place, Pittsburgh 30, Pa., and we'll send you your copy right away.

U·S·S SPECIAL CRANE RAIL SECTIONS

UNITED STATES STEEL

If you write maker identify as IEN - 10102

GET IN THE KNOW

about anti-friction bearing care

Now, at no cost to you, your SKF Distributor will show your plant operating men two educational sound slide films about the characteristics, handling, installation, removal and lubrication of any anti-friction bearings. They can help you minimize bearing replacements.

Consult the Classified Section of your phone book—call your SKF Distributor—he'll arrange a showing for you.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA., *manufacturers of* SKF *and* HESS-BRIGHT *bearings.*

SKF

BEARINGS AND PILLOW BLOCKS

If you write maker identify as IEN - 10103

with carbon soldered to metal

Now! Stackpole carbon brushes can be silver-soldered to leaf springs, eliminating brush holders and shunts. Carbon contacts can be soldered to metal arms. Carbon friction discs can be soldered directly to metal backing plates. You gain all the electrical and mechanical advantages of Stackpole carbon—*without the need for costly supporting fixtures.* Send details of your application for recommendation.

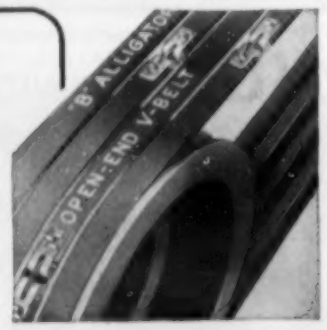
STACKPOLE

STACKPOLE CARBON COMPANY, *St. Marys, Pa.*

"EVERYTHING IN CARBON BUT DIAMONDS!"

If you write maker identify as IEN - 10104

WHICH V-BELT *is best for you?*



If the correct size of endless V-Belt is not readily available, or if you have to tear down machinery to install, then the best belt to use is open-end V-Belting fastened with

ALLIGATOR **V-BELT FASTENERS**

★ In this way you can make up V-Belts in *any length* to fit *any drive* the fast economical way—V-Belts that perform exceptionally well.

★ In contrast to link-type belts these ALLIGATOR fastened V-Belts have just *one* strong joint . . . *stretch and follow-up maintenance are reduced to a minimum.*

ALLIGATOR **INTRODUCTORY V-BELT DRIVE UNITS**

contain V-Belting, Fasteners and Tools—everything you need in one compact package to make up V-Belts quickly. Available in sizes A, B, C & D.

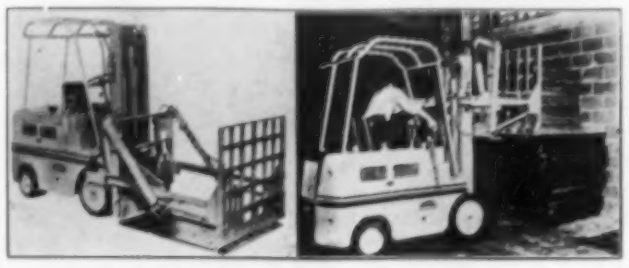
Ask for Bulletins V-215 and V-216
Order From Your Distributor

FLEXIBLE STEEL LACING COMPANY
4610 Lexington Street • Chicago 44, Illinois

If you write maker identify as IEN - 10105

Truck - Push-pull attachment for power loading and unloading action

Source: CLARK EQUIPMENT CO.
Dept. IEN, Battle Creek 49, Mich.



Pul-Pac and Pusher assembly

Loads that are stacked on thin sheets can be pushed from the plate type forks in this new attachment or can be pulled into carrying position. The attachment represents recent improvement over the design previously described IEN-1840-51. It employs hydraulic pressure, operating in sequence, to grip the edge of the loaded sheet and then pull or push the load. The improved unit is fitted with an equalizing shaft to handle off-center loads. Movement is at about 15 in. per second. The attachment can be placed and removed quickly.

If you write maker identify as IEN - 10106

Handling - Magnetic separator "floats" ferrous blanks for hand feed

Source: ERIEZ MFG. COMPANY
Grove Drive, Dept. IEN, Erie, Pa.

Sheet Fanner

Model SF-01 is new in the company's line of permanent magnet sheet handling units to present individual sheets or blanks, separated so an operator can pick them up. The magnet induces like polarity in adjacent unit causing them to repel each other so the upper pieces in a pile rise and are held individually. As each piece is taken from the top of the pile, others below it move up. The magnet maintains its strength indefinitely.

The standard unit is available in 6, 9 and 12-in. heights. It will handle stock piles to a maximum height of 5, 8 and 11 inches. The magnet is enclosed in a stainless steel cover and is equipped with a stainless steel face plate in welded assembly.

If you write maker identify as IEN - 10107

Super Tool Co., 21650 Hoover Road, Dept. IEN, Detroit 13, Mich., announces availability of carbide reamers in rough ground semi-finished form. Each reamer is delivered with sufficient grinding stock so, for example, a ½-in. nominal size can be ground 0.490 to 0.516 in. and a 1-in. nominal size can be ground 0.990 to 1.020 inch. Reamer users can stock a reserve assortment for protection against loss in production in the event of breakdown or other unpredictable emergency.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10108

The "Handler" is the first proved-in-service gasoline powered Lift Truck with hydraulic drive and hydraulic control. *Just one lever does all the work—shifts, lifts and brakes.* 2 speeds forward, 2 speeds backward. Instantaneous reversing. Rider has complete visibility at all times, and "dead man" brakes are an extra safety factor.

6 H. P. gas engine provides plenty of power for rugged round-the-clock operation.

Write today for descriptive folder.

THE COLSON CORPORATION

Elyria, Ohio

CASTERS • HAND TRUCKS • LIFT JACK SYSTEMS
Hydraulic, Electric and Mechanical Power Lifts and Transports

If you write maker identify as IEN - 10109

WESTINGHOUSE PNEUMATIC CONTROL

reduces wear and tear on paper machine

• Thilmany Pulp and Paper Company, Kaukauna, Wisconsin, selected Westinghouse Air Brake Co. Pneumatic Control to assure smooth, shock-free operation of a new paper machine. Westinghouse Valves are used to precisely adjust pneumatic clutches and brakes on the dryer rolls, couch, presses, calendar, and reel.

Wherever you need precise control of linear motion—on brakes, clutches, small presses, positioning devices, sequencing mechanisms, and the like—investigate the possibilities of Westinghouse Pneumatic Control. Our engineers will be glad to help you. Just write, explaining your problem.

Westinghouse Air Brake COMPANY

INDUSTRIAL PRODUCTS DIVISION WILMERDING, PENNA.

Manufacturers of air compressors, pneumatic cylinders, actuators, air control devices of all kinds, engineered pneumatic control systems and front end loaders.

FACTORY BRANCH: Emeryville, Calif.
Distributors throughout the United States . . . See your classified directory.
Distributed in Canada by: Canadian Westinghouse Co., Ltd., Hamilton, Ontario.

If you write maker identify as IEN - 10110

This INDICATOR VALVE is *Guaranteed* to Stay Tight!

BACHARACH MODEL YYL

Fully opened or closed by one quick turn of handwheel.

Dependable, tight closing by hand pressure under all conditions.

Relief passage for venting of indicator is opened and closed automatically when turning handwheel.

Valve never needs to be removed from engine for replacement of any parts.

Valve spindle not exposed to direct flame of combustion; therefore, no galling of threads nor sticking of spindle in gland.

Exceptional durability and trouble-free performance has been achieved by new concept of design—the use of a free-moving ball as the seating element. Ball is seated gas-tight by force of engine pressure when valve is closed, and forced off its seat by valve spindle to open valve.

WRITE FOR BULLETIN 654D

BACHARACH INDUSTRIAL INSTRUMENT CO.
7301 PENN AVENUE • PITTSBURGH 8, PA.

If you write maker identify as IEN - 10111

GENERATORS

Globe miniature, lightweight, permanent magnet D.C. Generators produce high output voltage linear with speed, and require low starting torque to provide positive sensitivity for use as a rate device in servo systems, for instrument indicating applications, and for circuit power.

Units may be driven up to 20,000 RPM. Up to 28 volts per 1,000 RPM with ± 2% linearity and less than 5% ripple in most ranges can be provided. Depending on windings, units can produce as high as 12 watts continuous output power. Available with synchro type mounting and/or tapped holes; with plain, pinion or geared shaft; and with screw terminals or lead wires.

WRITE TODAY FOR BULLETIN 800

Globe industries, inc.

MOTORS • GEAR REDUCERS • GENERATORS • GOVERNORS • SERVOS
BLOWERS • FANS • ACTUATORS • SWITCHES • GYROS • VIBRATORS

1788 STANLEY AVE., DAYTON 4, OHIO

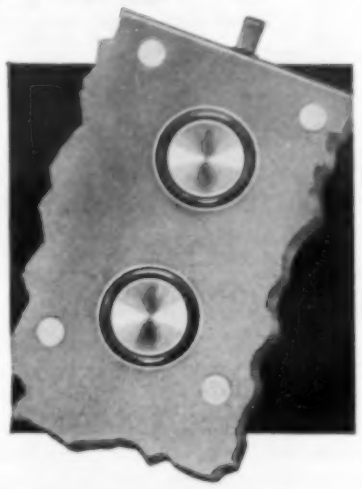
If you write maker identify as IEN - 10112

New HARTWELL

Push Button

Trigger Action

FLUSH LATCH



MODEL H-2

• A new latch development for modern equipment. Combines the desirable features of push button operation with the positive simplicity of trigger action in a small, rugged, lightweight yet inexpensive flush latch.

Available in many offset combinations for various door and frame thickness arrangements. Standard with or without gaskets in stainless steel or cadmium plated cold rolled steel.

Write for new 1954 Flush Latch Catalog

HARTWELL COMPANY | *Manufacturer of Flush Latches and Hinges, Fittings and Cable Terminals* 9035 Venice Blvd., Los Angeles 34, Calif.

If you write maker identify as IEN - 10113

SIMPLICITY AND INGENUITY have made

American STORAGE RACKS

First Choice

here's an exclusive American feature

American Tubular Storage Racks are designed to meet practically every storage need. They are used in every type of business, large and small. Get the facts on American Racks before you decide on any type rack. Send for catalogue.

AMONG AMERICAN USERS ARE:

Atomic Energy Commission
Aluminum Co. of America
General Electric Co.
General Motors Corp.
I. B. M.
Parke-Davis Co.
S. S. Kresge Co.
Western Electric Co.

Send for Catalogue

AMERICAN METAL PRODUCTS CO.

STORAGE RACK DIVISION
5959 Linsdale • Detroit 4, Michigan

If you write maker identify as IEN - 10115

Fabricating - Teflon film is "welded" to form cell for gasoline

Source: GRAEF ENGINEERING CO.
Box 416, Dept. IEN, Paramount, Calif.

"So Big"

Illustrated is a completed cell, that has been artificially inflated to show its size, as representative of teflon film fabrication the company is prepared to undertake to specified order. It is one of the new potential applications which the company can make of the material teflon in manufacture of bags and sacks, tank liners, containers, protective clothing, valve discs, vat liners, capacitors, heat sealers and custom bonding of the teflon to metal.

If you write maker identify as IEN - 10116

Melting - Electric pot to dip solder printed electric circuits

Source: VULCAN ELECTRIC CO.
88 Holten St., Dept. IEN, Danvers 8, Mass.

Sixteen sizes

The company announces completion of its line of electric melting pots which now comprises a total of 16 sizes ranging in work chamber dimensions from 6 by 12 in. to 12 by 12 in. with depth from 1 to 4 inches. Operation is on 110 or 220 volts. Each model employs a special heating element to eliminate hot spots in the molten solder. The solder chamber is made of cast iron. The outer housing is steel suitably insulated. The base is equipped with adjustable legs for set-up on uneven surfaces.

If you write maker identify as IEN - 10117

Eze-Tred is a detachable step, made of aluminum, to fit a standard ladder. It applies without need for fastenings, is comfortable and secure to stand on. Safway Metal Products Co., 1111 Webb Ave., Dept. IEN, Detroit 2, Mich., is the maker.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10118

FASTER CHUCKING means SPEEDIER PRODUCTION

with the

Foredom CHUXRITE RAPID-ACTION COLLET VISE

For cylindrically-shaped parts to 1/4" diameter use with DRILL PRESS, MILLING or TAPPING MACHINE, LATHE, etc. and on the bench for assembly work, polishing, cleaning, soldering, etc.

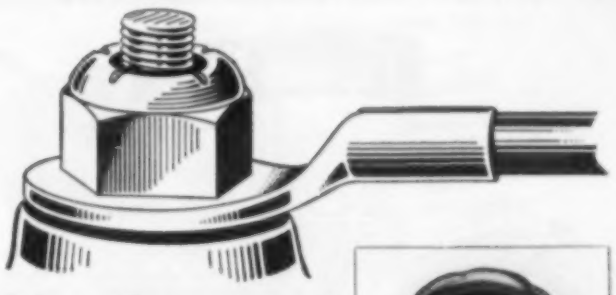
only $7.90 (collets $1.40 each)

7 sizes of collets available from 1/16" to 1/4" by increments of 1/32". Complete set in hardwood holder $8.75.

At your industrial supply distributor. If he cannot supply, order direct.

FOREDOM ELECTRIC CO., DEPT. 4169
27 Park Place • New York 7, N. Y.

If you write maker identify as IEN - 10119



Vibration-proof electric terminals

Self-locking brass Elastic Stop® nuts provide positive protection against the loosening effects of vibration. The red elastic locking collar provides a constant grip on terminal studs . . . prevents ignition or power supply failures. Because Elastic Stop nuts remain tight in any position on the stud—whether firmly seated or not—they are easily adjusted. One-piece fasteners, readily removed and re-used.

Write ESNA® for the most practical answer to your fastener problem. Address Dept. H57-937.

ESNA

ELASTIC STOP NUT CORPORATION OF AMERICA
2330 Vauxhall Road, Union, N. J.

DESIGN HEADQUARTERS FOR SELF-LOCKING FASTENERS

If you write maker identify as IEN - 10120

BARBER COLMAN

Impressor

for quick, on-the-spot hardness testing of non-ferrous metals and plastics

Simple to operate . . . gives an instant, dependable measure of hardness. Operates on principle of forcing a spring-loaded indenter into the surface with the amount of penetration registering on a dial indicator. Can be used in any position . . . tamperproof . . . compact . . . rugged, yet weighs only 12 oz. Thousands used by industry.

Write today for complete details.

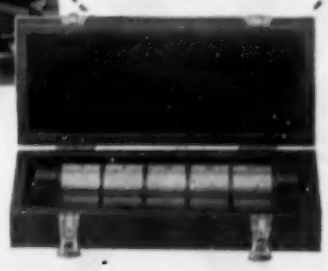
BARBER-COLMAN COMPANY, Dept. I, 1216 Rock St., ROCKFORD, ILL.

If you write maker identify as IEN - 10121

Check Surface Roughness Waviness and Lay INSTANTLY

. . . Right At The Machine

With ACME'S ROUGHNESS COMPARISON SPECIMENS



Consists of various surface specimens, *individually finished* to definite micro-inch readings, grouped together in one handy comparison bar. Merely hold bar opposite work for fast, visual comparison check of surface roughness, waviness and lay.

Available in groups of 3, 5 and 8 specimens. Low cost. Write for details, now!

Mfr's. of Drill Jig & Fixture Bushings

ACME INDUSTRIAL COMPANY

215 N. Laflin St. Chicago 7, Illinois

THE SERVICE SHOP TO INDUSTRY FOR OVER A QUARTER CENTURY

If you write maker identify as IEN-10122

Famous Holes

H & K Perforated Holes

The Port Hole—it frames the smiles of those who are enjoying the delights of life on shipboard. And, many a smile has likewise been produced by *H & K Precision Perforated Holes* when they put an end to production delays and high costs in screening, grading, separating and other industrial applications.

Our more than 70 years experience permits us to satisfy your most difficult requirements with precision perforating of thousands of hole sizes, shapes and patterns — in all the metals; including hard to perforate stainless steel and Monel; in hardboard, plastics and other materials which come in plates, sheets or coils.

If it can be perforated— H & K can perforate it!

The Harrington & King Perforating Co.

5637 Fillmore Street, Chicago 44, Ill.
114 Liberty Street, New York 6, N. Y.

If you write maker identify as IEN-10123

Safer!

No Slippage with a NEWCO Wire Rope Clamp!

Holding Efficiency 95% to 100% of Catalog List: Simple to Install

It's safe! It's strong! The Newco Wire Rope Clamp and Thimble bearing surface is five to ten times greater than a pressed-steel thimble. Eye opening larger than that of standard thimble. Users report greater holding efficiency than "U" bolt type clips. Reduces down time. Maximum protection to wire rope. Simple to install, no special tools needed. Lasts up to three times longer! Used by leading companies throughout the nation. Names on request. Compare the Newco Wire Rope Clamp with any other on the market . . . and you'll choose Newco.

Here's the Secret!

Locking construction, patented by Newman, automatically *forces clamp to hold tighter when load gets heavier.* IMPOSSIBLE TO SHEAR BOLTS OFF, because wire rope pressure pushes keying sections closer, preventing movement of bolts up and down.

Get all the facts . . . specifications, details, prices . . . on the Newco Clamp now. See your Distributor or write direct.

wire rope **NEWCO CLAMP**

Newman Manufacturing & Sales Company
Dept. 101, 205 Westport Rd., Kansas City 11, Mo.

If you write maker identify as IEN-10124

MILL-ROSE Twisted Wire Brushes offer a better way!

These twisted wire brushes are only a few of dozens MILL-ROSE has specially designed. If our catalog of 56 standard double and single spiral brushes does not include the brush you need — we'll design one for you. Write for Catalog EN-54

HIGH PRECISION **MILL-ROSE** INDUSTRIAL BRUSHES

THE MILL-ROSE CO.
1985 East 59th Street
Cleveland 3, Ohio

If you write maker identify as IEN-10125

Record Keeping - Projector magnifies, displays microprint cards

Source: EASTMAN KODAK CO.
343 State St., Dept. IEN, Rochester 4, N. Y.

In stock

Magnification is 22X in this new Kodagraph microprint reader. The image is displayed on a screen measuring 8¾ by 10½ inches. The machine measures 14 by 22 by 17½ inches. It operates on 110-volt ac. and is about the same weight as a typewriter. List price is $300.

The microprint card is gripped on a roller that enables the user to select that portion of the card bearing the pages with the information he desires. The roller takes cards to 8 by 14 inches. The image is viewed on a green screen made of a material to eliminate glare spots. Several persons can read from the screen equally well at the same time. Inclination from vertical is at 11 degrees. Cooling equipment in the housing prevents damage to the cards.

If you write maker identify as IEN-10126

Bellows - Miniature assemblies of brass, bronze, beryllium copper

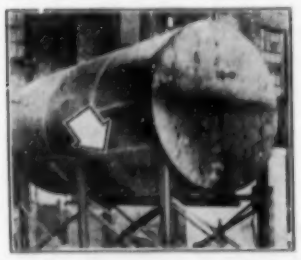
Source: ROBERTSHAW-FULTON CONTROLS CO.
1225 Connecticut Ave., Dept. IEN, Bridgeport 1, Conn.

Specifications upon request

The company announces production in quantity lots of metal bellows measuring ¼ and $\frac{5}{16}$ in. in diameter for application as components of valves and switches. Typical example is a ¼-in. unit made of two-ply phosphor bronze, a $\frac{5}{16}$-in. Monel Metal assembly with a wall thickness of 0.002 in. and a ¼-in. beryllium copper bellows that will withstand external pressure to 2,300 pounds.

If you write maker identify as IEN-10127

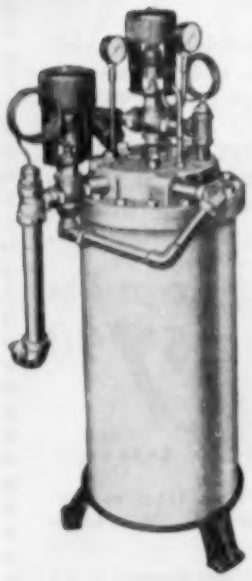
You can build yourself a heated tank without having to put any heating elements on the inside by application of the Thermo-Panel Heating element made by Dean Products, Inc., 616 Franklin Ave., Dept. IEN, Brooklyn 38, N. Y. The panel is made of two sheets of steel formed to constitute a passage for steam or hot water, similar to a return bend pipe coil when the sheets are put together and welded. By curving the sheets to conform with the tank wall, they can be applied on the tank and connected into a heating or a cooling line. The application is particularly suited to heat asphalt and to hold chemical solutions, oil, molasses at a sufficiently high temperature for free flow. In cooling service, application can be made on soaps, waxes, acids, alkalis, electrolytes, powders, mixtures. In addition to mild steel, the plates are available in stainless steel, Monel Metal and other special alloys to specification.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10128

CONDITIONS DEMANDED— So-COE developed . . .



The WATER HEATER OF TOMORROW

Here is a radically different "package" water heater. • It arrives completely assembled, tested and adjusted. No accessories to buy. Simply attach pipes, then turn on water and steam. • An advanced product of high quality in every detail. • Utililize abundant water at the safe temperature of 120° F. for washroom; or water at 160° to 180° F. direct from tank simultaneously for scalding purposes. • Seventeen sizes in capacities from 200 to 3000 G. P. H.

Heavily glass-lined A. S. M. E. tanks.

MAXIMUM Thermal Efficiency.

All parts quickly and easily accessible.

Completely Insulated and Protected by Waterproof Cover.

Long life through minimum corrosion.

17 Sizes.

Capacities 200 to 3000 G. P. H.

THE COE MANUFACTURING COMPANY
504 BANK STREET • PAINESVILLE, OHIO

If you write maker identify as IEN-10129

FAMOUS "CHEM-BOARD"* CONVOY TOTE BOXES

*Chemically Hardened Corrugated Board

SOLD THROUGH LOCAL INDUSTRIAL DISTRIBUTORS

Cost—weigh—50% to 60% less than steel. A wide range of sizes in standard and custom made NESTING, STACKING, VERTICAL TOTE BOXES. Write for complete information, prices, name of distributor in your area.

CONVOY RECORD STORAGE FILES
Sold Only by YOUR LOCAL STATIONER

Used by most famous names in industry and businesses of all kinds. CONVOY "CHEM-BOARD" files for record storage made in letter, legal, and 12 other sizes. Stack to ceiling, mate together. Call your local stationer or write for name of stationer nearest to serve you.

CONVOY, INC.
Canton 6, Ohio
P. O. Station B, Box 216-1

If you write maker identify as IEN-10130

For Safety's Sake . . .

DAV-SON

FLASHING SAFETY DIRECTOR

Easier to Read—Easier to Change

Flashing Dav-Son Safety Director for plant safety. Traffic light red, green spots flash "SAFETY FIRST." Color, motion, light compel attention. Only Dav-Son has *changeable letter* design with removable panel for frequent quick-change message. Say what you want when you want. 98 3½" red and 250 1⅞" black acetate letters in compartment box inc. Size 18½x29x6. 110-120 volts, AC-DC. **$39.75**

Insist on genuine **self-sealing** cork back bulletin boards with hardwood frames. Many sizes to choose from. With or without glass doors. Also with metal frames for inside or outside use.

Solve employee communication problems with DAV-SON bulletin boards. World's largest selection. 100 different styles and sizes. Write today for complete information.
Dealer Inquiries Invited.

DAV-SON **A. C. DAVENPORT & SON, INC.,** Dept. IEN
311 N. DESPLAINES STREET • CHICAGO 6, ILLINOIS

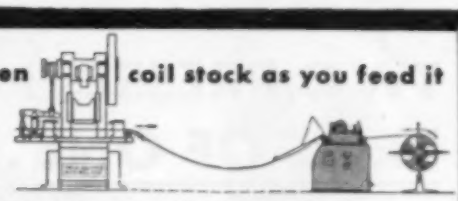
INSIST ON DAV-SON—YOUR BEST BUY

If you write maker identify as IEN-10131

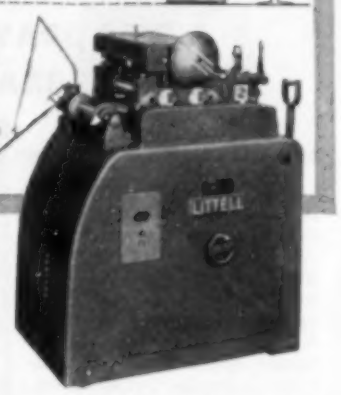
BRONCO 60 Certified

If you write maker identify as IEN-10132

straighten coil stock as you feed it with a



LITTELL Variable Speed Straightener



Model 412-SPD Heavy Duty Straightener Straightens steel up to .125" thick and up to 12" wide

A Littell straightener removes the curvature from coil stock. The press, slitter or shear receives a continuous strip of pre-straightened stock. Equipped with variable speed transmissions, Littell Straighteners are adjustable to meet a wide range of speed requirements in automatic feeding. They also simplify hand feeding. A variety of medium and heavy duty models straighten coil stock of all standard widths and thickness.

Write for the Littell Straightener Catalog

E. J. LITTELL MACHINE CO. Speed with Safety

ROLL FEEDS • DIAL FEEDS • REELS
STRAIGHTENING MACHINES • AIR BLAST VALVES

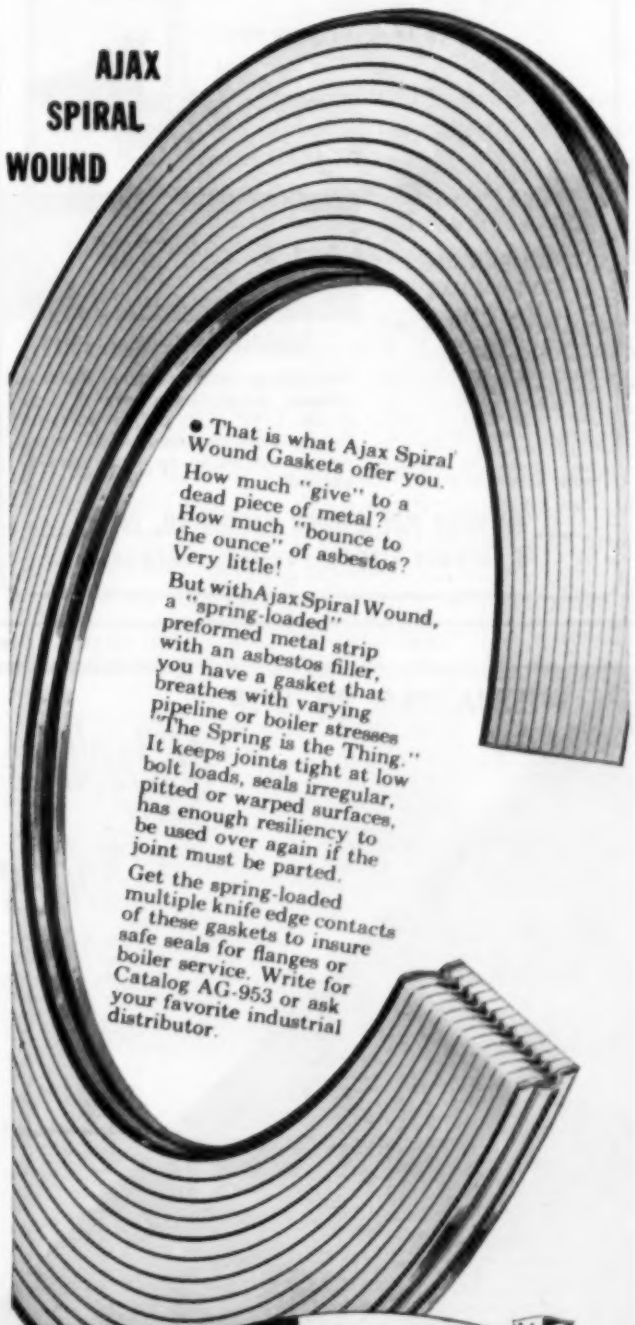
District Offices: Detroit, Cleveland

4133 N. RAVENSWOOD AVE., CHICAGO 13, ILL.

If you write maker identify as IEN-10133

more BOUNCE to the OUNCE!

AJAX SPIRAL WOUND



● That is what Ajax Spiral Wound Gaskets offer you. How much "give" to a dead piece of metal? How much "bounce to the ounce" of asbestos? Very little!

But with Ajax Spiral Wound, a "spring-loaded" preformed metal strip with an asbestos filler, you have a gasket that breathes with varying pipeline or boiler stresses. "The Spring is the Thing." It keeps joints tight at low bolt loads, seals irregular, pitted or warped surfaces, has enough resiliency to be used over again if the joint must be parted.

Get the spring-loaded multiple knife edge contacts of these gaskets to insure safe seals for flanges or boiler service. Write for Catalog AG-953 or ask your favorite industrial distributor.

UNITED STATES GASKET COMPANY

CAMDEN 1 • NEW JERSEY

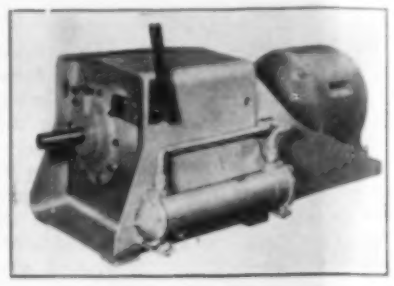
FABRICATORS OF duPont TEFLON, Kellogg KEL-F AND OTHER PLASTICS

Representatives in Principal Cities Throughout the World

If you write maker identify as IEN-10135

Drive - Variable speed hydraulic in six sizes, 7½ to 800 horsepower

Source: AMERICAN BLOWER CORP.
8109 Tireman Ave., Dept. IEN, Detroit 32, Mich.



Bulletins 9419 and 9519

A constant speed motor, a hydraulic coupling with provision for variable speed control, a circulating pump and an oil cooler are the major components in this new Type-VS Class-2 Gyrol fluid drive. It represents further development of the drive previously described IEN-1325-49. It is available for speed to 1,800 rpm.

The motor is direct connected to an input shaft carrying the impeller and rotating casing for the hydraulic coupling. A circulating pump, mounted on the input shaft, delivers oil from a sump in the housing to the external oil cooler. Oil from the cooler is returned to the piping inside the sump to re-enter the working circuit through the center of the input shaft. The output shaft and the hydraulically driven runner form the output side of the assembly. Both sides are mounted on anti-friction bearings.

Power is transmitted from the impeller to the runner by a vortex of oil which takes the form of an annular ring in the working circuit and the scoop tube chamber. Scoop tubes are positioned by an external speed control lever to establish level of oil in the chamber. This, in turn, determines the amount of oil in the working circuit and therefore the output speed of the drive. The control variation is stepless.

The transmission housing without the motor measures 26 to 43½ in. in length by 27¾ to 46¼ in. in width by 30⅜ to 52½ in. in height. Length, measured over the input and output shafts, is 38 to 63⅜ inches. The input shaft is 2⅛ to 3⅞ in. in diameter. Input and output shafts measure 2⅛ to 3⅞ inches in diameter.

If you write maker identify as IEN-10136

Pipe - Extruded plastic, length to 20 ft., sizes ½ to 2 inches

Source: B. F. GOODRICH COMPANY
450 S. Main St., Dept. IEN, Akron 11, Ohio

Light weight

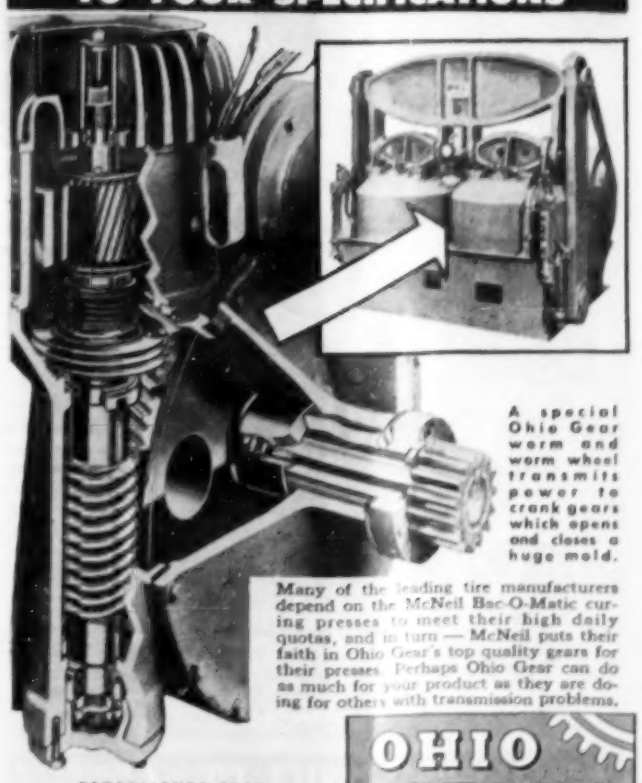
The company announces production of its new rigid Koroseal pipe and threaded fittings for application where chemical resistance, ability to handle pressure and resistance to impact are factors. The new pipe is chemically resistant, odorless, corrosion proof and rot proof. It has excellent aging characteristics for application inside, outside or under ground.

The Koroseal is a rigid non-flammable material. It produces a pipe, gray in color, with a smooth surface inside and outside. It will take standard vinyl base paints for color coding. It can be bent after heating to about 300 deg. F. Flange connections are recommended to other types of pipe.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10137

POWER TRANSMISSION TO YOUR SPECIFICATIONS



A special Ohio Gear worm and worm wheel transmits power to crank gears which opens and closes a huge mold.

Many of the leading tire manufacturers depend on the McNeil Bac-O-Matic curing presses to meet their high daily quotas, and in turn — McNeil puts their faith in Ohio Gear's top quality gears for their presses. Perhaps Ohio Gear can do as much for your product as they are doing for others with transmission problems.

ESTABLISHED 1919
THE OHIO GEAR COMPANY
1345 EAST 179th STREET • CLEVELAND 10, OHIO

OHIO GEARS

If you write maker identify as IEN-10138

SANDS MIXED-GRAINED SURFACES without abrasive scratch!

New Porter-Cable Quality Electric Tools DUSTLESS Finishing SANDER

MODEL 127

ONLY 59.50

Ideal for cabinet work

Now sand matched-grain or burled woods, inlays, butted veneers — any wood surface where you want to show beautiful grain configuration, even butted joints — without scratching or marring!

Orbital motion of Porter-Cable's Model 127 Dustless Sander produces a glass-smooth surface — regardless of direction of grain. Powerful vacuum system whisks away 91% of wood dust. Keeps grits clean; makes sandpaper last 15% longer; speeds sanding 25%.

Equipped with Universal AC/DC motor; gearless drive; dust bag; patented paper clamp; weighs a little over 6 lbs.

Write for full information and dealer's name.

Bands large areas, rounded corners and edges—fast.

PORTER-CABLE MACHINE CO., 2209 N. Salina St., Syracuse 8, N. Y.
Manufacturers of Speedmatic and Guild Electric Tools

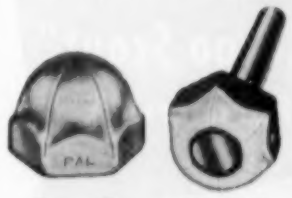
If you write maker identify as IEN-10139

NO THREADS NEEDED!

PUSHNUTS

Trademark

Low cost—speedy assembly—hold tight

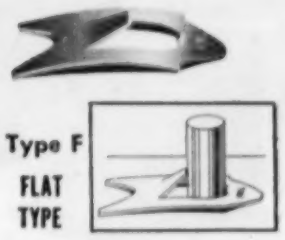


Type C Type K

For unthreaded Rods and Axles

Used on wheels of play vehicles; also other permanent applications.

Place PUSHNUT on rod, tap with hammer. Patented locking method resists 100 lbs. or more. Eliminates threading, notching, cotter pins. Made of heat-treated spring steel, in pleasing acorn or semi-acorn styles and various finishes, for 3/16", 1/4" and 5/16" rod.



Type F FLAT TYPE

For unthreaded Studs and Rods

Ideal for nameplates, mouldings and other light parts.

Slips easily over stud, instantly locks with push of simple inexpensive applicator. Spring tension pulls parts snugly to base—energized grip holds tight against loosening or rattling. Choice of finishes for 3/16", 1/4" and 5/16" studs.

Write for free samples, stating size and application.

THE PALNUT COMPANY

Manufacturers of PALNUT® Lock Nuts and Fasteners
59 Cordier St., Irvington 11, N. J.
In Canada: P. L. Robertson Mfg. Co., Ltd., Milton, Ont.

If you write maker identify as IEN-10140

Industry's safest safety curb!

— one of five safety features you get in every Magcoa Dockboard

When you buy a Magcoa Dockboard you have two main things in mind—to increase loading efficiency and speed, and *to increase loading safety*. The exclusive Magcoa Dockboard safety curb helps you do both . . . with the emphasis on safety. That's what a safety curb is for.

Experience with thousands of curbs helped Magcoa develop the original engineered safety curb, designed to increase safety by preventing equipment run-offs. Furnished in different sizes for varying load and handling equipment requirements, the Magcoa Dockboard safety curb is the most widely used, and safest, safety curb in industry today.

Magcoa Dockboards safer five ways:

- Rounded curb-ends for easier turns—important on narrow docks.
- Quarter-round safety curbs—sized for equipment and load requirements, to deflect wheels, prevent equipment run-offs.
- Permanent, raised-pattern safety tread plate to assure safe, positive tire traction—or long-wearing abrasive finish.
- One-piece hand-holds at all corners, molded to fit the hand for complete safety in lifting, positioning.
- Rugged, bridge-built safety spans for extra strength and to eliminate dangerous slipping.

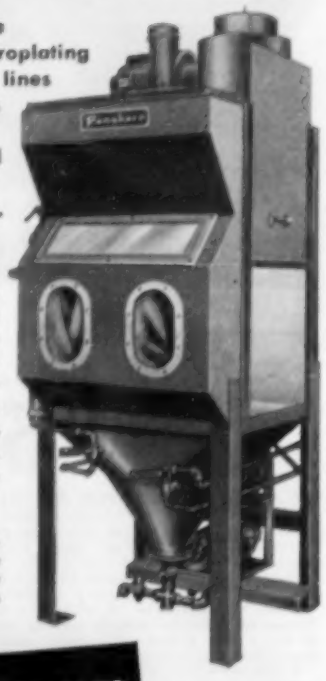
Write today for your free new *Dockboard Facts File.*

MAGNESIUM COMPANY OF AMERICA
MATERIALS HANDLING DIVISION • EAST CHICAGO 14, INDIANA

If you write maker identify as **IEN - 10141**

Pangborn HYDRO-FINISH

- deburrs • removes scale
- prepares surfaces for electroplating
- removes, blends grinding lines
- finishes threaded sections for fit
- improves die making and maintenance
- improves cutting tool life.



PANGBORN Hydro-Finish does all these jobs and more! Fine mesh abrasives suspended in water give you a precision finish . . . hold tolerances to .0001". Vary abrasives, air pressures, work distances, ratio of liquid to abrasive and you can do almost any finishing job faster and better!

GET THE FACTS on how Hydro-Finish can save *you* money! Write for Bulletin 1400A to: PANGBORN CORPORATION, 2300 Pangborn Blvd., Hagerstown, Md.

Pangborn BLAST CLEANS CHEAPER *with the right equipment for every job*

If you write maker identify as **IEN - 10142**

FAST, COMPACT—"Cargo Scout" is ideal for speedy service in congested areas, narrow aisles, inside box cars, road trucks, etc.

LOW OPERATING COST—electric power costs only pennies per day. No fumes, or vulnerable clutch.

360° STEERING plus 57" turning radius gives greater maneuverability.

EASIER MAINTENANCE—all parts instantly accessible for faster lubrication or inspection.

END CONTROL—better vision, safer, easier to get on and off.

TELESCOPING UPRIGHTS. 100" of lift with only 68" overall height, with uprights retracted, and full 50" of free lift.

WRITE FOR FULL DATA on the brand new, 2000 lb. capacity "Cargo Scout". The Elwell-Parker Electric Co., 4064 St. Clair Avenue, Cleveland 3, Ohio.

If you write maker identify as **IEN - 10143**

MIDGET AIR DIE GRINDER

This 12 ounce, palm-size midget creates a sensation in every shop in which it is introduced. A precision Erickson collet die grinder for day-long production. For use with mounted points and carbide burrs where accuracy is a "must". Features a new "patented" noise silencer that makes it a pleasure to use.

Model No.	Speed (rpm)	Collet Size	Side to Center	O.A. Length
PG-K-1030L	30,000	1/4"	5/8"	4 5/8"

40 Factory-Owned Service Warehouses, Coast to Coast, to Give You Fast, Dependable Service.

MALL TOOL COMPANY PORTABLE POWER TOOLS GASOLINE • ELECTRIC • AIR

7782 S. Chicago Ave., Chicago 19, Illinois

RUSH me free copy of MALL Pneumatic Tool Catalog.

*Name*_____

*Company*_____

*Address*_____

MU-122

If you write maker identify as **IEN - 10144**

Tachometer - Centrifugal design for readings to 500 and 5,000 rpm.

Source: HERMAN H. STICHT COMPANY
27 Park Place, Dept. IEN, New York 7, N. Y.

Bulletin 765

Two ranges are provided by this new Model-JX tachometer. Either is selected by turning a knob on the housing. One reads in increments of 2 rpm. between 50 and 500 rpm. The other reads in increments of 20 rpm. between 500 and 5,000 rpm. Readings in fpm. are the same as rpm. divided by two.

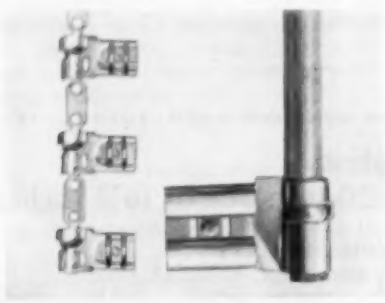
Construction includes a stop button that permits holding the pointer at measured speeds after the tachometer has been disengaged from the rotating shaft. A push button, on the left side of the housing, locks the pointer when it is depressed. It is released by pressure on a push button on the opposite side.

Operation can be in either direction and is unaffected by temperature changes, stray electric currents or magnetic conditions. In reading fpm., a 3-in. circumference wheel tip is applied on the spindle.

If you write maker identify as **IEN - 10145**

Connector - Solderless design push connects to mating wire terminal

Source: AIRCRAFT-MARINE PRODUCTS INC.
2100 Paxton St., Dept. IEN, Harrisburg, Pa.



For production wiring

Flag Style has been added to the company's standard line of Faston connectors. The new push type connector applies on a terminal that has been crimped on a No. 18 to a No. 12 AWG wire. The connector provides wiping contact, as well as spring holding action, to make electrical connection. It is provided in strip form, wound on reels, for use with the company's automatic machine for application at speeds to 4,000 per hour. It can be fed from either side to be used as both a right hand and a left hand flag mating with the Faston tab.

If you write maker identify as **IEN - 10146**

Spirally striped Tensolon is a new high temperature teflon insulated wire. The spiral striping provides for color coding and circuit identification. The coloring employs inks fused into the insulation surface. A total of 819 different striped combinations are possible using a range of colors. The wire is supplied in conductor sizes from No. 26 to No. 10 AWG. by Tensolite Insulated Wire Co., 196 Main St., Dept. IEN, Tarrytown, N. Y.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as **IEN - 10147**

PSC Universal Air Control devices employ new principles in air regulation . . . Balanced Piston Regulators, Automatic lubrication with venturi action, Cyclone Filtering. All three devices are featured in the Combination Unit pictured above; other combinations are also available. The PSC line includes individual Air Lubricators, Filters, Regulators, Automatic Drain Traps, Dehumidifiers, Quick Disconnect Couplings, and Rotary Air Seals.

Write for Bulletin No. 75.

1. Atomizes exact amounts of oil by venturi action.
2. Balanced Piston Valve action adjusts to ¼ of a pound.
3. Wool Felt filters particles as small as 30 microns, as well as oil and water.

"Where *Good Connections* Count"®

PERFECTING SERVICE CO.
332 Atando Ave. Charlotte, N.C.
(Home Office & Factory)

Chicago Cleveland Providence New York Montreal Toronto

If you write maker identify as **IEN - 10148**

TWO PRESSES for the PRICE OF ONE . . .

A DEEP DRAW PRESS — A PRESS BRAKE

This 100 ton PACIFIC HYDRAULIC PRESS BRAKE is unique as a draw press because it provides a maximum of accessible working space without corner strain rods. It also can be easily converted to a press brake in less than ten minutes by removing the upper platens. As a press brake, it incorporates all of the advantages of "The Pacific" — the first really safe brake. It can't be jammed — the stroke is infinitely adjustable from ⅛" to 10" with full tonnage available throughout the stroke — It accurately straightens and air bends — It is designed for heavy punching and blanking at any point along the bed.

PACIFIC HYDRAULIC PRESS BRAKES have proved themselves by years of daily operation throughout the World.

Sales and service available in all major cities of the United States. Call us for assistance in supplying a machine to fit your special needs.

PACIFIC INDUSTRIAL MFG. CO.
848 - 49th Avenue - Oakland, Calif.

If you write maker identify as **IEN - 10149**

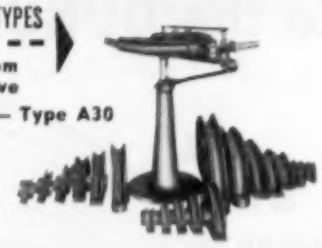
"The American"

LINE OF COLD PIPE, CONDUIT AND HEAVY WALL TUBE BENDERS HAND AND POWER

ONE OF 10 HAND-OPERATED TYPES

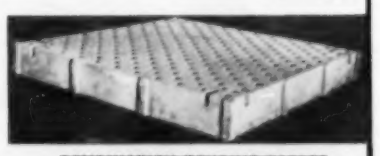
bending cold pipe from ¼" to 6" I.P.S. inclusive

Up to 2" — Type A30



AMERICAN TYPE 2PBR

Designed for power application to our Type A-30 Hand Bender. Bends ⅛" to 2" Pipe at radii approx. 5 times pipe size, up to 180°. Complete, ready to run—no extras for standard machine. Min. radius bend—5 times pipe size. Max. radius bend —13". Complete with rolls for each pipe size. Standard motor equipment 2. H.P.

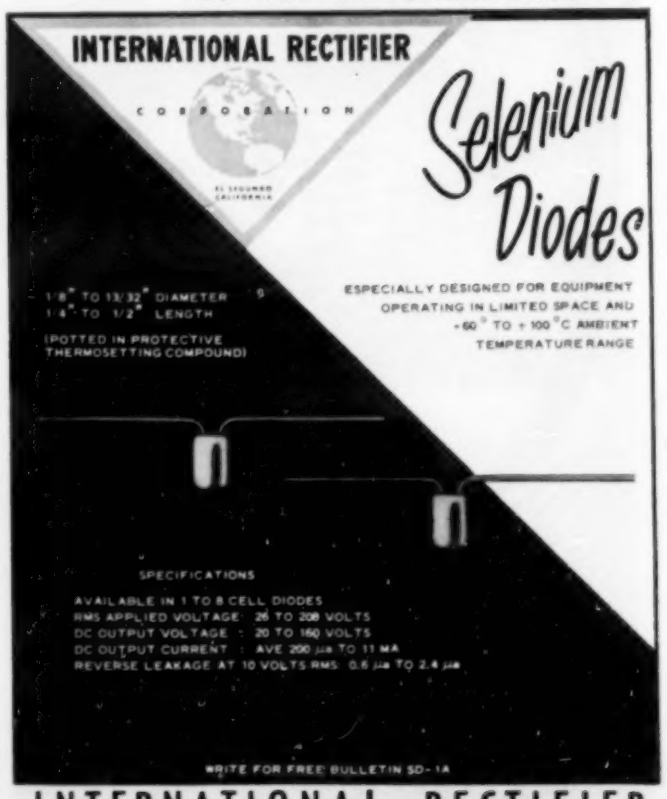


COMBINATION BENDING TABLES

For hot or cold bends of various shapes, pipes, bars, etc. 5' sq.; 7' sq. (3½' x 7' pairs) suitable for welding together. Other sizes or custom made to your specifications.

AMERICAN PIPE BENDING MACHINE CO., INC.
9 Furnace Street, Poultney, Vermont

If you write maker identify as **IEN - 10150**



INTERNATIONAL RECTIFIER CORPORATION

1521 E. Grand Ave., El Segundo, Calif - Phone: ORegon 8-6281
CHICAGO: 205 W. Wacker Drive - Phone: Franklin 2-3889
NEW YORK: 501 Madison Avenue - Phone: Plaza 5-8665

If you write maker identify as IEN - 10151

If you write maker identify as IEN - 10152

What another user says about

WALES HOLE PUNCHING AND NOTCHING EQUIPMENT

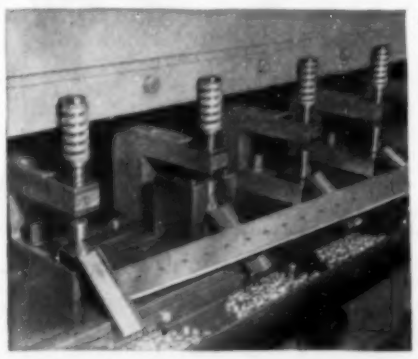
Mr. H. J. LOCKWOOD,
Plant Superintendent, BULLDOG ELECTRIC PRODUCTS OF LOS ANGELES, *writes:*

"Our products must maintain perfect uniformity from run to run, as one of the primary features of our switchboards is interchangeability of parts and the ability to add new units to an existing installation as our customers' manufacturing facilities expand. The use of Wales-Strippit equipment and templates assures this degree of perfection."

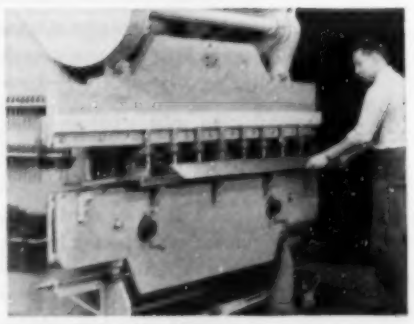
"When we recently embarked on a program of manufacturing power switchboards, my production methods were naturally centered around Wales equipment."

Mr. Lockwood's experience is typical of thousands of users of Wales patented, independent, self-contained Hole Punching and Notching Units that are used and re-used in unlimited setups in press brakes and stamping presses.

Wales time-saving, cost-saving methods make it a BIG story. Write for fully illustrated, functionally colored Catalog CJ *TODAY.*



◀ Close-up of Wales Type "CJ" Hole Punching Units with pin stop gaging for punching 56 holes (17/64" diameter in 5/16" thick copper) on 1¼" centers in bus risers and matching holes in steel mounting frames.



Wales Type ▶ "CJ" Hole Punching Units set up at BULLDOG Electric Products of Los Angeles. Note use of ram bar on front of ram to increase operating shut height of press brake.

WALES-STRIPPIT CORPORATION
George F. Wales, Chairman
361 Payne Avenue, North Tonawanda, N. Y.
(Between Buffalo and Niagara Falls)
Wales-Strippit of Canada Ltd., Hamilton, Ontario
Specialists in Punching and Notching Equipment

If you write maker identify as IEN - 10154

Plating - Cluster barrel segregates like pieces of small work

Source: UDYLITE CORPORATION
1651 E. Grand Blvd., Dept. IEN, Detroit 11, Mich.

Available to order

Cluster Barrel designates a new multiple assembly of small plating containers in a single rack with provision for rotation in a plating solution. The barrels are mounted on spokes and are held in place by C-type spring clips which also serve to retain the lids. Individual containers are easily snapped out of the clips and the lids are lifted off to empty and reload. The bale type rack also can be lifted out by means of a ring provided for this purpose.

Small parts of various types do not become mixed in the plating operation. The small unit barrels also will handle small delicate parts that cannot be put into a standard bulk plating barrel without danger of breaking or injury.

If you write maker identify as IEN - 10155

First Aid - Combined ambulance, fire engine and emergency truck

Source: CHRISTOPHER COMPANY
66 Beaver St., Dept. IEN, New York 4, N. Y.

Patented

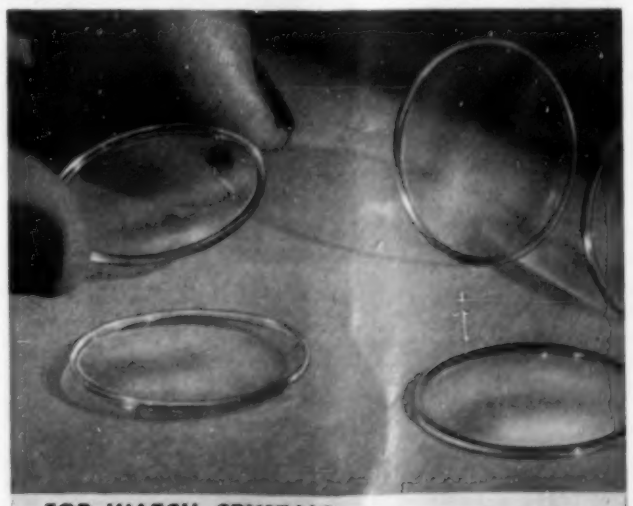
FAPA, standing for fire-ambulance-patrol-auto, is a new special motor vehicle to provide first aid, extinguish fires and carry patients who have been injured.

The main body contains two 8-ft. bed-seat-tank assemblies capable of carrying three patients lying down and two sitting down or eight seated. The driver and an attendant ride in a cab separated from the main body by an accordion type door. The water tank hold 100 gal. each and are fitted with connections on both sides of the vehicle. Compartments beneath the cab floor hold lengths of 1½-in. hose as well as reserve oxygen cylinders.

A foam tank holds 20 gallons. It is equipped with an automatic control valve. A compartment above the rear bumper conceals a crank operated reel that takes 250 ft. of ¾-in. high pressure chemical hose. Compartments, built into the cab, provide storage for portable first aid and emergency equipment including gas masks, oxygen generating breathing units, "Foille" spray kits to treat burns and an MSA Pneolator self-contained portable apparatus to administer artificial respiration automatically. This part of the equipment is supplied by Mine Safety Appliances Co. of Pittsburgh.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10156



FOR WATCH CRYSTALS
Many Leading Watch Companies use . . .
COCOR CO-3*
because:
- It does not craze or check due to stress or chemical solvents
- It is optically clear
- It is hot formable to radical curves
- It has high impact strength

*a clear, hard allyl-based resin

For further information, see Ic/Ca in Sweet's Product Design File.
For catalog and samples of COCOR plastics, write to
CAST OPTICS CORPORATION
RIVERSIDE 9, CONNECTICUT
specialized plastic materials for specialized design requirements.

If you write maker identify as IEN - 10157

to solve SPRAY NOZZLE problems

get your free copy of
SPRAYING SYSTEMS CO. CATALOG NO. 24

48 pages of spray nozzle reference data . . . the most complete catalog of its kind ever produced.

let a SPRAYING SYSTEMS CO. sales engineer help you

. . . his specialized experience is yours for the asking.

write to . . .
SPRAYING SYSTEMS CO.
Engineers and Manufacturers
3208 Randolph Street • Bellwood, Illinois

If you write maker identify as IEN - 10158

NOW! a back-up pad with re-usable plates!

Just replace the leather!
Use new Armour Back-up Pads for years!

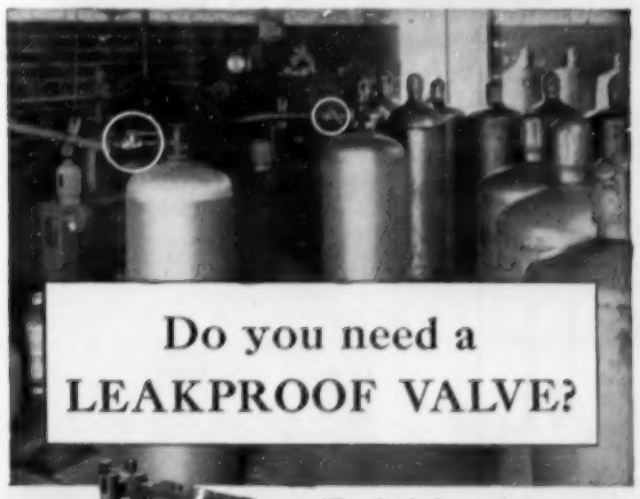
Are you throwing away your back-up assemblies when just the pad wears out? You can save that expense with the new Armour Back-up Pad! It's designed so you can detach the steel plates and use them over and over again. See your industrial distributor. Or, for further information, send today for the free booklet, "Armour Back-up Pads."

SEND FOR FREE BOOKLET!

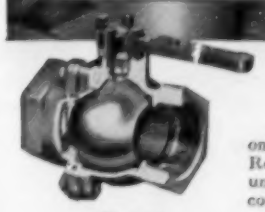
ARMOUR *Coated Abrasives*

Armour and Company • North Benton Road • Alliance, Ohio

If you write maker identify as IEN - 10159



Do you need a LEAKPROOF VALVE?



Patented

"Far ahead of any others we have used," says maintenance engineer of this propane plant.

Leakproof in a propane plant — *leakproof* on LP gas trucks — *leakproof* in a tannery — Rockwood Ball Valves are designed to operate under the roughest and most grueling of conditions. What are *your* conditions?

Remember, they're leakproof for a longer time, too — pay for themselves over and over during years of rugged service.

Other features — full, round flow; quick opening and closing; extra *wear* resistance. Tested and listed by Underwriters' Laboratories Inc. Write for complete details. It may pay you big dividends.

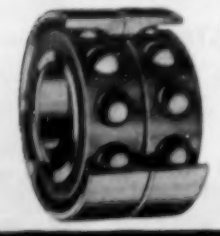
ROCKWOOD SPRINKLER COMPANY
429 Harlow St., Worcester 5, Mass.

ROCKWOOD *FULL-FLOW* BALL VALVES
THE FLOW IS AS ROUND AS THE PIPE ITSELF

If you write maker identify as IEN - 10160

SUPER-PRECISION BALL BEARINGS

For unexcelled protection, Fafnir Super-Precision Bearings are wrapped in aluminum foil. To command special care in handling, they're packed in gold-colored cartons.

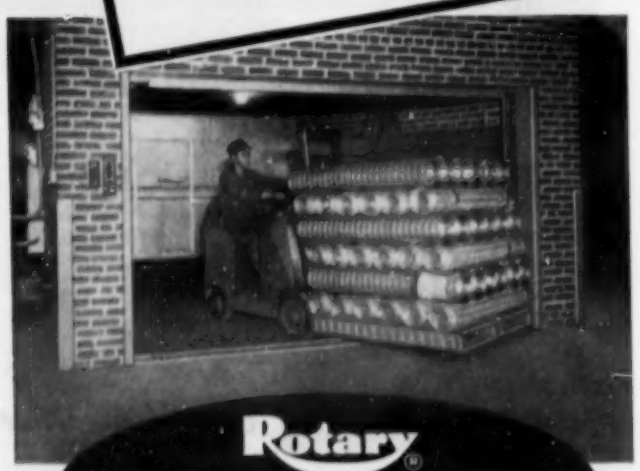


For applications requiring high speeds, extreme accuracy and rigidity in such equipment as high grade machine tools, woodworking machines, jet engines, sensitive precision instruments etc., Fafnir manufactures a complete line of bearings in extra-precision tolerances. For details write the Fafnir Bearing Company, New Britain, Connecticut.

FAFNIR BALL BEARINGS
MOST COMPLETE LINE IN AMERICA

If you write maker identify as IEN - 10161

Most economical
ELEVATOR
for new installations
or replacements



Rotary
OILDRAULIC
ELEVATOR

Save money on installation and operating costs

- Modern hydraulic operation
- No costly, unsightly penthouse
- Smooth starts and stops
- ¼" accuracy on landings
- Rugged car construction
- Engineered for power trucks
- High Efficiency power units
- Low upkeep expense
- New Oildraulic Controller
- Freight or passenger service
- Capacities up to 100,000 lbs.

Over 75,000 Oildraulic elevators and lifts are now in use . . . backed by Rotary's coast-to-coast organization.

MAIL NOW FOR NEW CATALOG

ROTARY LIFT CO.,
1115 Kentucky, Memphis 2, Tenn.
Send catalog on Rotary Oildraulic Elevators to:

Name_____

Address_____

_____

If you write maker identify as IEN - 10163

Cleaning - Portable vacuum machine for wet or dry pick-up from the floor

Source: PREMIER COMPANY
755 Woodlawn Ave., Dept. IEN, St. Paul 1, Minn.

Master-Vac machine

Model P-901 is a new caster mounted vacuum cleaning machine equipped with a 1-hp. 110-volt ball bearing universal motor. The bearings are permanently lubricated. The motor drives a suction blower capable of developing a vacuum equivalent to 58 in. of water lift. Air flow rates 130 cubic feet per minute.

Tank dimensions are 20½ by 35½ inches. Liquid capacity is 13 gallons. Dry capacity is 1¼ bushels. Filtering area, when used in wet pickup, is 1060 square inches. The ball bearing swivel casters are fitted with soft rubber threads. A set of cleaning tools is included for general maintenance. A wet pick-up tool kit is available to specification.

If you write maker identify as IEN - 10164

Retrieving - Spring operated reel supports portable tools to 5 pounds

Source: ARO EQUIPMENT CORP.
109 Madison St., Dept. IEN, Bryan, Ohio

Also for fixtures

Nylon-sheathed wire rope, for 5 ft. of tool adjustment, winds on a spring backed reel in the housing of this new Model 7472 Balancer. In-line suspension prevents twisting when the tool is pulled down. A spring lever is pressed to relieve tension or a nut on the opposite side of the housing is turned to increase tension, after the unit and the tool it is to balance have been installed. The housing carries a rust resistant finish. Weight is 2 pounds.

If you write maker identify as IEN - 10165

You will be pleased to find a Multi-Luber in place and connected to lubricate all of the steering axle bearings on the next new Automatic Transportation fork lift truck you purchase. One push on the lubricator plunger and the bearings each receive their quota of grease. Lincoln Engineering Co., 5732 Natural Bridge Ave., Dept. IEN, St. Louis 20, Mo., supplies the lubricator.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

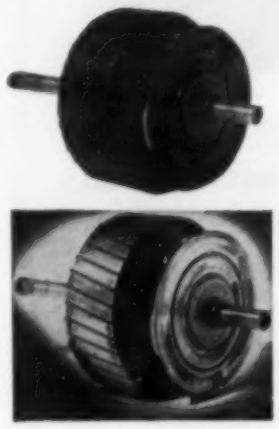
If you write maker identify as IEN - 10166

If you write maker identify as IEN - 10167

CLEANS ELECTRIC MOTORS

WITHOUT DISASSEMBLY . . .

REMOVES DIRT and GREASE WITH FILM-FREE RESULTS



Brulin Solvent Degreaser is harmless to rubber, and because it is a non-conductor of electricity, motors may be cleaned by immersion and by running while immersed. Dirt and grease are removed with no film deposited. Periodic maintenance of motors by cleaning prevents build-up of "varnishes" common in electric motors. Non-toxic and relatively non-inflammable. Ideal for maintenance of motors used in air-conditioning and circulatory systems where air flow deposits dirt and dust due to magnetic attraction.

Write today for more complete information

BRULIN Solvent Degreaser

BRULIN & COMPANY, INC.
2938 COLUMBIA AVENUE · INDIANAPOLIS 7, INDIANA

If you write maker identify as IEN - 10168

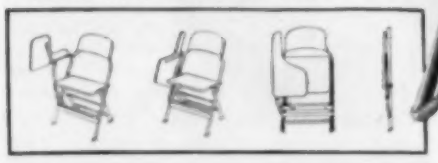
When you need EXTRA Seating and Table Space . . .

for Sales Meetings . . . Instruction Groups . . . Departmental Conferences

Here's your answer . . .

The *Clarin* TABLET ARM CHAIR THAT FOLDS

FOLDS FLAT IN 3 EASY STEPS



Foam rubber cushioning a CLARIN PLUS feature.

Here is combined seating and table capacity in one comfortable unit. At a moment's notice you can turn even a small office into an efficient meeting room. The built-in Tablet Arm is a marvel of skilled engineering. It lifts at a touch to let you sit down or get up—it folds down out of the way when chair is needed for seating only. The entire chair folds flat in seconds, in three deft movements, to a flat depth of only 3" for quick, safe stacking in minimum space. ***Write today*** for complete information on this quality engineered, space-saving chair.

Clarin Mfg. Co., Dept. 30,
4640 West Harrison Street, Chicago 44, Illinois

Clarin *There is a Clarin Steel Folding Chair for your every need. New FREE Catalog of complete line on request.*

ENGINEERED QUALITY MAKES THE BIG DIFFERENCE IN FOLDING CHAIRS

If you write maker identify as IEN - 10170

MAKE ALL FLOORS

METAL, CONCRETE, AND WOOD

SLIP-PROOF

WET OR DRY

USE **R-MIR-DEK**

NON-SLIP COATING

FOR ALL FLOORS, STAIRS, RAMPS, AREAS AROUND MACHINERY AND LOADING PLATFORMS.

R-MIR-DEK NON-SLIP COATING is the only lightweight safety floor coating that is fire retardant, anti-corrosive, easily applied, and oil, grease, alkali, and acid-resistant. Compounded of durable phenolic resins and polymerized oils with everlasting aluminum oxide granules added. Available in white, olive drab, red, light and dark grey, sea grey, brown, regular and navy blue, black, and green.

FREE! 2-color R-Mir-Dek illustrated brochure describes this lightweight, safety floor coating. Write to Dept. IEN-9.

MIRACLE ADHESIVES CORPORATION
214 East 53rd Street, New York 22, N. Y.

If you write maker identify as IEN - 10171

Reduce Lost Man Hours

"Kerodex" Gives New and Improved Barrier Protection Against Contact Dermatitis

"Kerodex" is a new and improved barrier cream which offers maximum protection against hundreds of primary irritants and sensitizing agents encountered in industry. It provides an effective protective coating which is invisible yet strong and as elastic as the skin itself. It protects against initial contact. It prevents the recurrence of a dermatitis after recovery.

Special Advantages

"Kerodex" offers practical and effective protection *before* the damage is done. It is nonirritating and nonsensitizing. It may be applied with equal safety to the face, hands or any other area of the skin, keeping pores and follicles free from foreign matter.

"Kerodex" does not smear. It does not affect materials handled, nor is it affected by them. It is easy to apply, economical and highly acceptable to the user.

"Kerodex" provides a vital safety measure for the maintenance of high production levels.

Maximum Protection

"Kerodex"® is supplied in two types, and a series of creams are available to protect against: *water-soluble* irritants such as acids, alkalis, soaps, detergents, and *water-insoluble* irritants such as paints, enamels, cleaning fluids.

Write for Information

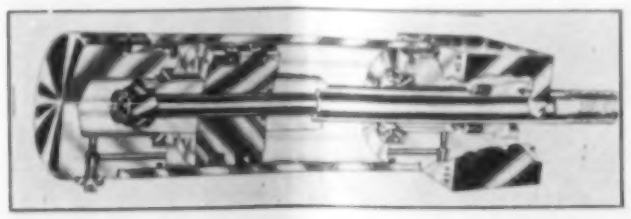
We'll be happy to send you complete descriptive literature, or to have our representative call at your convenience.

Ayerst Laboratories, 22 East 40th Street, New York 16, N. Y.

If you write maker identify as IEN - 10173

Cylinder - Double acting design, flexible cushion seals, bore to 4 in.

Source: TOMKINS-JOHNSON COMPANY
617 N. Mechanic St., Dept. IEN, Jackson, Mich.



For air or oil

Compact design in which steel heads thread into the seamless steel cylinder where they are sealed by O-rings, characterizes the construction of this new Spacemaker cylinder. The heads are no greater in dimension than the cylinder diameter. No tie rods are required. Sizes range from 1 to 4-in. bore with stroke from 1 to 12 in. in increments of 1 inch. Three longer strokes are 14, 16 and 18 inches.

Hubs, on the two sides of the piston, enter gasket equipped recesses in the heads to cushion the stroke. Chevron packings and a scraper ring are employed with an insert in which the chromium plated rod operates. The cylinder bore also is chromium plated. The piston is fitted with U-cup packings. The line is available from stock in six mounting styles. It is suited for air pressure to 200 lb. and oil to 750 pounds.

If you write maker identify as IEN - 10174

Refrigerating - Sub-zero machine designed to cold treat metal parts

Source: CONRAD INCORPORATED
52 W. 4th St., Dept. IEN, Holland, Mich.

Bulletin 11

Steel gages can be stabilized to hold their shape, bearing inserts can be strengthened, finished tool parts can be treated in this new Series-C low temperature cabinet. The smallest unit has a work chamber measuring 14 by 14 by 14 inches. It is 30 by 26 by 40 in. in outside dimensions and operates on 110-volt ac. It is air cooled portable and employs Freon 13 and Freon 22 in the cascade direct refrigerating equipment. It is capable of reducing and holding temperature down to minus 120 deg. F.

The line includes larger units with chamber capacity to 34 cu. ft. and equipment that can reduce temperature to minus 200 deg. F. Automatic heating and cooling recycling, with timed control, can be specified. The company has prepared a bulletin on the subject of freeze treating steel.

If you write maker identify as IEN - 10175

Concentrated acid solutions can be handled by a new rubber hose developed by Republic Rubber Division, Albert St., Dept. IEN, Youngstown 1, Ohio. The new hose has been in field service for several months handling concentrated sulfuric, hydrofluoric, chromic and nitric acids. It is available in a range of sizes.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10176

HEAT THAT MOVES AROUND

If you write maker identify as IEN - 10177

New! SIMPLEX AV VALVE does 2 jobs:

1. STOPS PIPELINE COLLAPSE!
2. ENDS AIR ACCUMULATIONS!

Type AV Valve is a compact, combination air release and air inlet valve. It performs three separate functions:

- Admits air to break vacuums . . . prevents pipeline collapse.
- Releases air automatically to increase pumping efficiency.
- Vents large quantities of air when filling the system . . . saves buying an oversized valve.

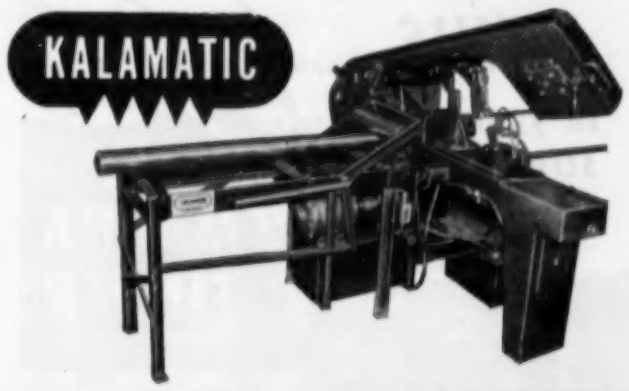
High Discharge Capacity! 880 cubic feet of free air per minute at 10 psig, over 2200 C.F.M. at 50 psig.

CHECK THESE FEATURES! Compact! Only 11⅝" x 16¼" in size. Easy to install! One standard 2" pipe connection. Positive-acting, non-corrodible float. Tested hydrostatically to 300 psig.

Write for Free Technical Bulletin No. 1203
SIMPLEX VALVE & METER COMPANY
6717 UPLAND STREET, PHILADELPHIA 42, PA.

SIMPLEX®
VALVE AND METER COMPANY

If you write maker identify as IEN - 10178



Automatic BAR FEED ATTACHMENT

Kalamazoo Metal Cutting Band Saws lead the field. Get details on

MODEL 8C
Cuts 8" round, 16" flat, 8" pipe.

MODEL 1220
Cuts 12" round, 20" flat.

MODEL 610
Cuts 6" round, 10" flat.

Converts *Kalamazoo* metal cutting band saws to fully automatic cut-off machines. Feeds rounds, flats, hex, pipe, tubing, etc.—any length from 3/16" to 12".*

Here's truly automatic sawing that offers you savings never before possible at such a low investment.

*Additional feeding length to 30" available at extra cost.

GET FULL DETAILS FROM YOUR Kalamazoo DEALER, TODAY.

MACHINE TOOL DIVISION
***Kalamazoo* TANK and SILO CO.**
911 HARRISON STREET • KALAMAZOO, MICHIGAN

If you write maker identify as IEN - 10179

1 man handles Sheet Steel *Faster, Easier* with a C-F LIFTER

C-F Lifters, under one man operation, pick up, carry and unload more sheet steel tonnage per hour than any other method – and at lower cost per ton. Wide carrying angles hold sheets securely – won't damage high grade sheets; tong action insures safe carrying; fast opening and closing adjustments of Lifter jaws permit shifting from one size pack to another in seconds. C-F Lifters are made in standard or semi-special models to handle from 2 to 60 tons.

Write for Bulletin SL-28 for specific examples of C-F Lifter operation and economy.

CULLEN-FRIESTEDT CO.
1310 South Kilbourn Avenue • Chicago 23, Illinois

If you write maker identify as IEN - 10180

★ Air operated—apply material easier, faster—at less cost.

★ Get positive, uniform delivery through long lines—*safely*.

★ Lay hundreds of lineal feet per man-hour—with far less product spoilage.

FREE Send now for idea book. How Alemite Versatal Equipment can speed, simplify your handling problems. Write Alemite, Dept. B-84, 1830 Diversey P'k'y, Chicago 14, Illinois.

ALEMITE Versatal

If you write maker identify as IEN - 10181

THIS ____ in your power screwdrivers

— SPEEDS WORK
— CUTS COSTS

. . . picks up the screw . . . instantly positions it . . . so that with one-hand operation the bit automatically enters the slot and drives it home. Alnico magnet has ten times the "pull" and holds screw firmly without tilting or shifting.

Interchangeable with regular power Screwdriver finders. Available for all makes of power drivers and all sizes of screws. Thousands in use.

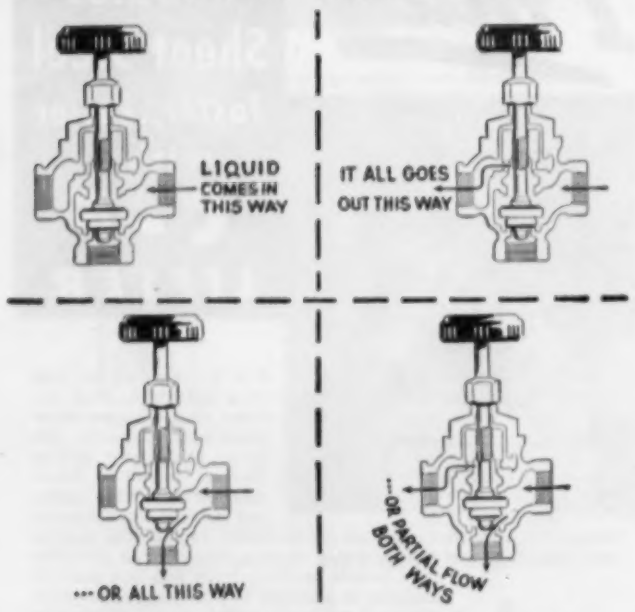
Magna Bit Holders*, Magna-Tip Hand Screw Drivers*, and Magna-Tip Hex Drivers also employ the revolutionary, cost-saving Magna principle.
*U. S. Patent No. 2,550,775.

Write for folder 65-E information and prices

MAGNA DRIVER CORP.
779 WASHINGTON ST., BUFFALO 3, N. Y.

If you write maker identify as IEN - 10182

NEW DOUBLE-SEATED BY-PASS VALVE WORKS LIKE THIS



Made of bronze alloy, designed for maximum water working pressure of 300 pounds, maximum temperature of 425 degrees F. Sizes--⅜ or ½-inch. Write for additional information.

O-B VALVES Ohio Brass MANSFIELD OHIO, U.S.A.

If you write maker identify as IEN - 10183

Hose - Light weight construction for oil handling at a loading dock

Source: UNITED STATES RUBBER CO.
1230 Sixth Ave., Dept. IEN, New York 20, N. Y.

Sizes range from 3 to 12 in. inside

Neoprene tube, spiral wire reinforcement and an oil resistant cover make up the construction of this new Amazon Oil Discharge Hose Type H-1515. The hose uses light weight steel or aluminum fittings. It is good for working pressure to 200 lb. with a factor of safety of five. It can be bent or kinked without damage. It springs back to shape as soon as it is released. It curves into a short radius to apply in cramped quarters.

If you write maker identify as IEN - 10184

Cleaning - Etching material conditions aluminum to weld, finish

Source: OAKITE PRODUCTS INC.
166-A Rector St., Dept. IEN, New York 6, N. Y.

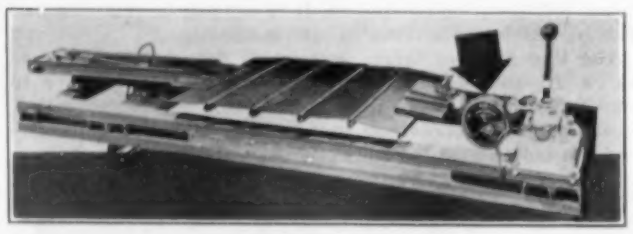
Technical data upon request

Composition 160 is a new alkaline type granular material to produce an etching solution with water for application on aluminum. The resulting etched surface on the aluminum forms an excellent base for paint and for anodizing. The etching action also removes oxides and assists in obtaining a sound weld.

The material is readily soluble in water and the solution can be rinsed off with either hot or cold water. It does not give off any troublesome fumes and the sludge that is formed is soft so it will not adhere to tank surfaces or heating coils and can be flushed down a drain.

If you write maker identify as IEN - 10185

Structural frame, hydraulic cylinder, hand operated hydraulic pump, a pair of grips and a Dillon Dynamometer



gage are employed as shown in the illustration, to tension test the connecting joints in a steel plate conveyor belt. Tension is applied by operating the pump and is read on the gage. W. C. Dillon & Co., 14620 Keswick St., Dept. IEN, Van Nuys, Calif., can supply the gage in maximum capacities of 500 to 100,000 pounds.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10186

for your parts cleaning problems--- a GRAYMILLS COLD DEGREASER saves time, cleans better, at less cost

USED BY 3854 PLANTS FOR JOBS LIKE THESE:

Cleaning dies, tools, etc.
Flushing machined parts
Flushing "Hydraulic" parts
Cleaning bearings
Cleaning Motors and Electrical Equipment
Maintenance and Service Work
Removing Rust Preventatives

THE SAFE, EASY, LOW COST WAY TO REMOVE OIL, CHIPS, GREASE, DIRT and PRESERVATIVES ON JOBS LIKE THIS:

For production, maintenance or service. Use safe, non toxic, low cost solvents. 15 Models. 40 to 300 gallon capcity.

SEND FOR NEW CATALOG

No Installation Headache Portable Too!

GRAY-MILLS

GRAYMILLS CORPORATION
3709 NORTH LINCOLN AVENUE - CHICAGO 13, ILLINOIS
WEST COAST: 4511 MELROSE AVE. - LOS ANGELES 29

If you write maker identify as IEN - 10187

HOW YOU SAVE...

Getting Drier Compressed Air

● You get lower costs and fewer troubles in the use of all air-operated machines, in paint spraying, in air cleaning or sand blasting, and lower maintenance and repair costs for all pneumatic tools.

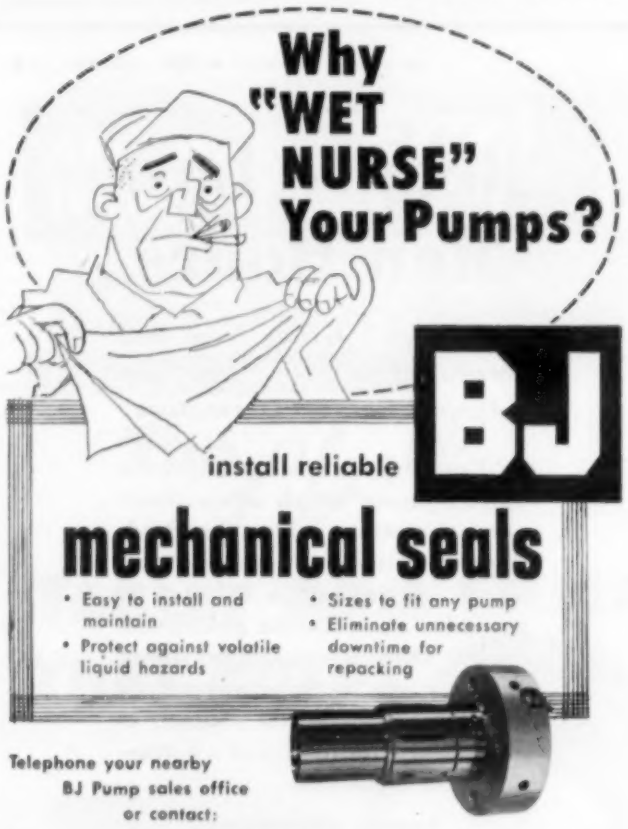
The NIAGARA AERO AFTER COOLER assures these benefits because it cools compressed air or gas below the temperature of the surrounding atmosphere so there can be no further condensation in air lines.

Direct saving of cooling water saves you the price of the Niagara Aero After Cooler in less than two years.

Write for Bulletin No. 98

NIAGARA BLOWER COMPANY
Dept. EN, 405 Lexington Ave., New York 17, N.Y.

If you write maker identify as IEN - 10188



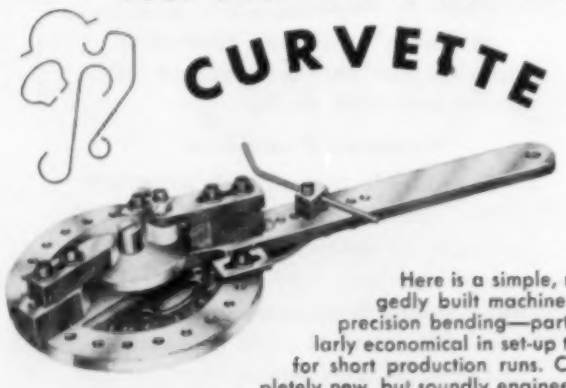
Byron Jackson Co. *Since 1872* P.O. Box 2017, Terminal Annex Los Angeles 54, California

If you write maker identify as IEN - 10189

If you answer YES to these two questions-

1. Do you form Wire, Strip, Bar, Angles, Channel or Tubing?
2. Are short production runs a bottleneck in your plant?

Your best bet is the NEW CURVETTE



Here is a simple, ruggedly built machine for precision bending—particularly economical in set-up time for short production runs. Completely new, but soundly engineered by the makers of the outstanding Bendit, Bendit Jr., and Curvit. The CURVETTE is a tool every shop can afford. Bends ¼" basic wire into almost any shape you desire. Takes strip up to ¾" by ⅛". Write for full details.

LUND PRODUCTS DIVISION PRECISION MACHINES FOR THE METAL WORKING INDUSTRY

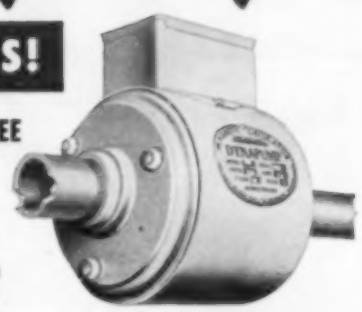
BENDIT, CURVETTE CURVIT, BENDIT JR. of *Artys Sales Company* 11 Broadway New York 4, N. Y. TEL: WHITEHALL 4-5480

If you write maker identify as IEN - 10190

Give your product these

Dynapump

ADVANTAGES!



- **MAINTENANCE FREE** — No lubrication
- **LEAKPROOF** — No shaft seal or stuffing box
- **EASILY INSTALLED** — Compact, light, may be mounted in any position
- **CORROSION FREE** — Stainless steel
- **LOW FIRST COST**

Fostoria MAGNETIC PUMPS

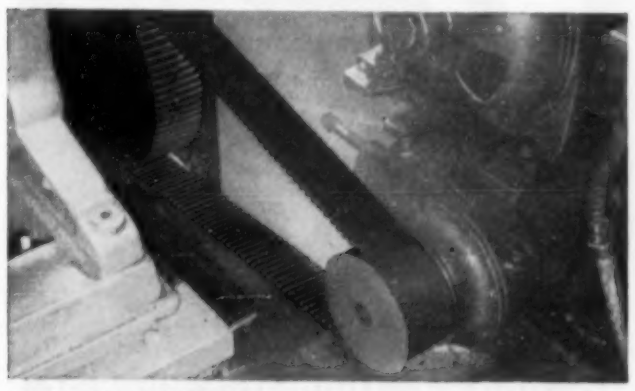
Ad No. 5404

The revolutionary DYNAPUMP is a magnetically driven fractional horsepower centrifugal pump that eliminates 90% of pump difficulties. It is suitable for pumping water, solvents, refrigerants, corrosive or hazardous fluids, beverages, etc. Write for descriptive folder.

THE FOSTORIA PRESSED STEEL CORP., Fostoria, Ohio
"Our 38th Year of Quality Products" Dept. 907

If you write maker identify as IEN - 10191

- *for low-cost speed reduction*
- *for high-efficiency drives, even at high ratios*
- *for quiet, non-slip drives*
- *for high-speed drives*
- *for low-maintenance drives*



GET THE ORIGINAL

Gilmer "TIMING" BELT STOCK DRIVES

from your NYB&P Distributor

WHETHER you want to step down the output of a high-speed motor . . . assure a fixed speed ratio between two or more shafts . . . or simply obtain a quiet, flexible, positive drive that needs no lubrication, your best bet is a Gilmer "Timing" Belt *stock drive!*

Here are some reasons why more than a million of these revolutionary toothed-belt drives are now in use:

CAN'T SLIP—Positive engagement of the "Timing" Belt's teeth with axially-cut pulley grooves assures no slippage, no creep, no power loss, precision control of speed ratio.

STRONG, LIGHT, FLEXIBLE—A single layer of continuously-wound, neoprene-encased, steel cable of high tensile strength gives the "Timing" Belt highest strength-to-weight ratio, with extreme flexibility. No stretch; no take-up. Range: to 50 hp from stock.

NO INITIAL TENSION—Teeth, not friction, provide the grip . . . reducing bearing loads and eliminating need for out-board bearings.

NO LUBRICATION—Absence of metal-to-metal contact eliminates need for lubricants, lubricating devices and housings. High speeds cause no lubricating problems.

ULTRA COMPACT—Very small pulleys can be used without slippage, permitting very short centers and high ratios.

SPEED RANGE—Operates without slippage at speeds of inches per day to 15,000 fpm. Mechanical efficiency is very close to 100%.

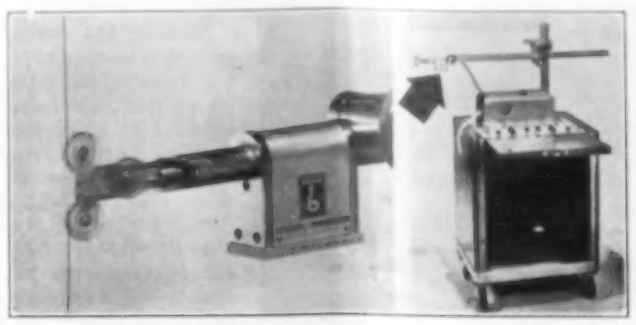
Ask your local NYB&P Distributor for a copy of the Gilmer "Timing" Belt STANDARD DRIVE MANUAL or use the request form to obtain a copy of the Manual and location of nearest stock-carrying distributor.

NYB&P NEW YORK BELTING & PACKING CO. 1 Market St., Passaic, N. J.
America's Oldest Manufacturer of Industrial Rubber Products

If you write maker identify as IEN - 10193

Testing - Tension recorder for fine flexible filaments in motion

Source: BRUSH ELECTRONICS CO.
3405 Perkins Ave., Dept. IEN, Cleveland 14, Ohio



Catalog Sheet ED11405

Tension Analyzer trade names new electronic equipment to measure and record instantaneous tension loads in fine flexible filaments such as textiles and small wire. The instrument converts displacement signals, both static and dynamic, into electric signals that are amplified and recorded on the direct writing oscillograph mounted on the portable equipment housing.

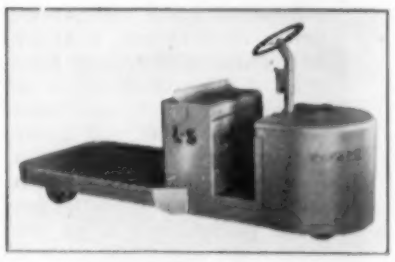
Displacement, due to changing tension, is accomplished by wrapping the filament around three ball bearing idler sheaves at the end of a universally adjustable arm. Two of the sheaves rotate in fixed position. The central third unit is secured to a plunger that moves inside a transducer housing for a total travel distance of 0.02 in. in either direction from center. This movement is translated into minute electrical impulses which are carried over a cable to the amplifier in the main housing where they are translated to the mechanical motion of the pen on the oscillograph chart. The head, carrying the three sheaves, can be positioned on any plane and at any level from about 1 to 8 feet.

Tension range is 4 to 400 gm. full scale. Operation is on 110-volt 60-cycle. Housing dimensions are 23 by 20 by 30 inches. The equipment provides maximum sensitivity of 0.1 gm. per mm. The oscillograph is a single channel magnetic unit, with frequency response at 0 to 100 cps., employing the company's Type BL-330 amplifier. Chart speeds can be set at 5, 25 or 125 mm. per second. Equipment weight is 165 pounds.

If you write maker identify as IEN - 10194

Truck - Electric platform unit rates one ton load in pick-up service

Source: LEWIS-SHEPARD
125 Walnut St., Dept. IEN, Watertown 72, Mass.



For utility service

The load platform in this new Model-J Totemaster truck provides 15 sq. ft. of load carrying area. It stand 9½ in. above the floor. The truck measures about 108 by 40 in. and has a 77½-in. turning radius. Operating speed is 5 to 6 mph. Power is supplied by a storage battery. Four seats can be mounted on the platform to carry individuals on a plant tour.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10195

the most widely used Electronic Supply Guide

free send for it

ALLIED'S

COMPLETE 308-PAGE

1955 CATALOG

your guide to the world's largest stocks of ELECTRONIC SUPPLIES FOR INDUSTRY

Simplify and speed *all* your purchasing of electronic supplies and equipment. Send your orders to us for fast shipment from the world's largest stocks of electron tubes (all types), test instruments, audio equipment, electronic parts (transformers, capacitors, controls, etc.). Our expert Industrial supply service saves you time, effort and money. Send today for your FREE 1955 ALLIED Catalog—the *complete* up-to-date guide to the world's largest stocks of quality Electronic supplies for Industrial use.

One complete dependable source for everything in electronics

ALLIED RADIO
100 N. Western Ave., Dept. 14-J-4
Chicago 80, Illinois

If you write maker identify as IEN - 10196

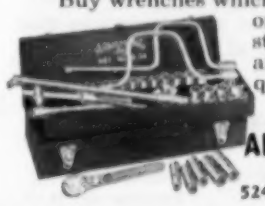
ARMSTRONG WRENCHES

Choose Your Wrenches as you do your friends--for life

Specify ARMSTRONG Wrenches for lifetime service, for finely balanced tools that feel right in the hand and make work easier, faster and less tiring.

Drop forged and machined from high tensile carbon or special alloy tool steels, ARMSTRONG Wrenches are heat treated, tempered and tested to an exact balance of toughness, hardness and tensile strength.

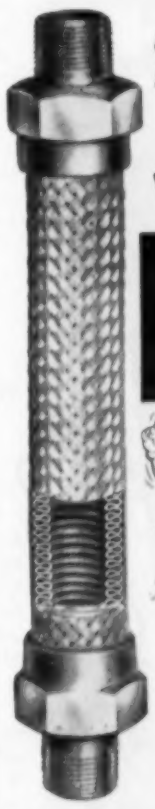
Buy wrenches which carry the trade names HI-TEN or ARMALOY. On carbon or alloy steel wrenches these trade marks are your guarantee of lifetime quality.



Write for catalog.

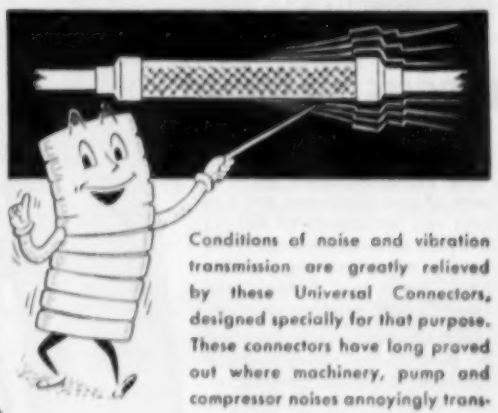
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
5243 W. Armstrong Ave., Chicago 30, Ill.

If you write maker identify as IEN - 10197



✓ DAMPEN NOISE
✓ ABSORB VIBRATION
with

UNIVERSAL VIBRATION CONNECTORS



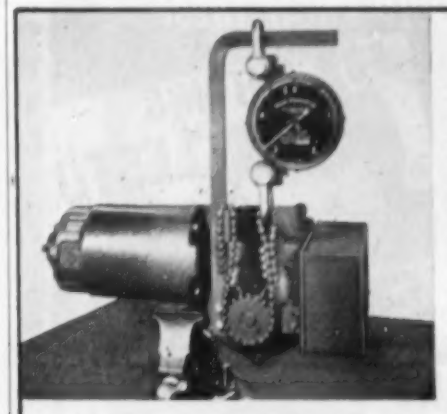
Conditions of noise and vibration transmission are greatly relieved by these Universal Connectors, designed specially for that purpose. These connectors have long proved out where machinery, pump and compressor noises annoyingly transmit through the system.

Available in standard lengths with female or male sweat-fittings for attaching to copper tube lines—or with solid male NPT threads for coupling to threaded pipes.

Send us your problem for recommendations. Ask for Catalog U-111 for your file.

UNIVERSAL METAL HOSE CO.
2131 SOUTH KEDZIE AVENUE • CHICAGO 23, ILLINOIS

If you write maker identify as IEN - 10198



DILLON Dynamometer checking torque of electric motor in simple bench test setup.

COMPACT

Fit into limited space measuring only 8¼x6¼x3". Weigh 8 lbs. 4 oz. Large, easy to read dial with maximum indicator hand.

EASY TO USE

Not injured by accidental overload. Reads direct in lbs. 13 capacities from 0-500 lbs. up to 0-100,000 lbs. Including max. pointer and shackles.

DILLON TRACTION DYNAMOMETER

Calibrated on Certified Laboratory equipment. Highest quality workmanship and materials throughout.

COUNTLESS USES

Tests tensile strength of materials, indicates torque, static loads, tension in wire, rope, cable, etc. Thousands in use. Priced LOW. WRITE FOR LITERATURE AND FREE TENSILE STRENGTH COMPUTER.

W.C. DILLON & CO., Inc.
14620K KESWICK ST.
VAN NUYS, CALIF.
(SUBURB OF LOS ANGELES)

SALES REPS.: Some Territories Open—WRITE

If you write maker identify as IEN - 10199

reel up idle air hose

Don't clutter up your shop with loose coils of air hose. See how **Schrader's "Tuck-Away Hose Reels** will add new safety to your use of air – how they'll keep air lines out of harm's way . . . eliminate a traffic hazard in your shop.

Compact, easy to install, Schrader Hose Reels deliver just the wanted length of hose, rewind it quickly with a slight tug.

Write for details on the Schrader "Tuck-Away" Hose Reel and other Schrader air accessories that will help you get the most out of your air line equipment. Write Schrader today.

A. SCHRADER'S SON

Division of Scovill Manufacturing Company, Incorporated

458 Vanderbilt Ave., Dept. D-46 Brooklyn 38, N. Y.

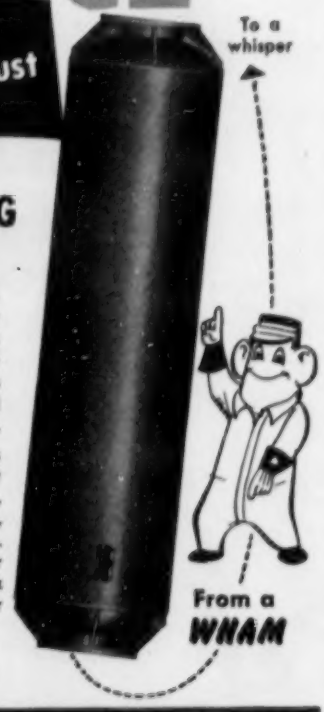
If you write maker identify as IEN - 10200

SILENCE

Those Costly Intake and Exhaust NOISES

with

BURGESS-MANNING SNUBBERS



They signal inefficient performance of your equipment and may cost you thousands of dollars annually in errors through faulty oral communications, needless nerve strain and fatigue, and result in poor neighbor relations.

Install Burgess-Manning Snubbers to scientifically silence exhaust noises from diesels, gas engines, jets, turbines, steam discharges, vacuum pumps and compressors. They offer plus values of air cleaning, heat recovery, spark arresting, surge control and water separating where required.

We invite you to submit your problems for recommendations —no obligation.

BURGESS-MANNING COMPANY

745 East Park Avenue Libertyville, Illinois

If you write maker identify as IEN - 10201

YOU SHOULD KNOW THESE

GREAT TIME SAVERS

FOR CUTTING

LESTO *Electric* **HAND SAW**

Jig, rip, scroll, band, crosscut, coping, key-hole saw for wood, metal, plastic, cement, etc. Turns out more work in less time . . . cleaner work with less effort!

FOR FINISHING

GUSTO ORBITAL SANDER

High efficiency on flat or curved surfaces . . . vertical or horizontal . . . even tight spots right to edges. No belts or gears. Reliable, durable sander for wood, metal, plastics, plaster, paint, etc. Largest sanding pad of any hand sander.

Sold and Serviced in Principal Cities Throughout U.S.A.

VICTOR J. KRIEG, Inc.

Dept. A, 611 Broadway

New York 12, N. Y.

GRamercy 7-5757

VICTOR J. KRIEG, INC.
Dept. A, 611 Broadway
New York 12, N. Y.

Gentlemen:
Please send full details on LESTO Hand Saw and GUSTO Sander.

Name _____
Company _____
Address _____
City _____ Zone ____ State _____

If you write maker identify as IEN - 10202

Drafting - Self-adhesive tape to take the place of thumb tacks

Source: BEHR-MANNING CORPORATION
Box 808, Dept. IEN, Troy, N. Y.

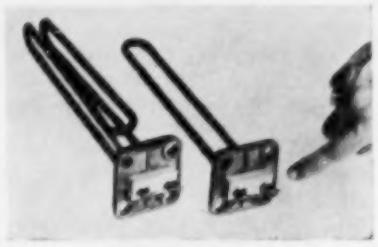
Draftsmen like it

Number 114 designates a new self-adhesive drafting tape to hold a tracing, drawing or blueprint on a drafting board. The tape requires no moistening. It holds firmly and evenly. It can be removed without any defacing or discoloring marks on drawing paper or cloth. It resists breaking when it is being removed from a roll for application. At the same time it can be torn crosswise readily so scissors are not required. Width ranges from ¼ to 3 inches. Rolls contain 60 yards.

If you write maker identify as IEN - 10203

Heating - Electric elements, immersion design for ac. or dc. input

Source: GENERAL ELECTRIC CO.
Dept. 6X-201, Schenectady 5, N. Y.



Pressure to 125 pounds

Calrod tubular units are formed into hairpin shapes, as shown in the illustration, and their ends are brazed into a flange in manufacture of this new immersion heater. It is available for operation on either ac. or dc. at 110 or 220 volts. It can be applied in water baths, cleaning tanks, humidifiers, quench tanks, stills, sterilizers.

A silicone seal and porcelain insulator are employed at the terminal ends. Connectors are welded to low resistance cold terminals which are attached to the resistance wire. Weights of the two units shown are 1¾ and 2¼ pounds.

If you write maker identify as IEN - 10204

Swinguard is a new pivoted device, made of steel, to attach to a standard two-wheel hand truck. The device contacts the ground if the operator loses hold of the truck and forces the truck forward and away from the operator's legs. It also acts as a skid on the forward motion and keeps the hand truck on a slight angle in stable position. Manufacturer is Twin-Tilt Truck Co., Fisher & B & O R. R., Dept. IEN, Cincinnati, Ohio.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10205

FORCE 5 Action

5 movements in one numbering machine

One machine fills scores of numbering needs . . . provides consecutive, duplicate, triplicate, quadruplicate or repeat numbering at the flick of a finger. Write for prices and catalog.

WM. A. FORCE & COMPANY, INCORPORATED

216 NICHOLS AVENUE, BROOKLYN 8, N. Y.

If you write maker identify as IEN - 10206

USE THIS NEW SAFETY MATERIAL ALL OVER YOUR PLANT

Safety **GRIP-STRUT** Pat. Pending

NON-SKID—RUGGED—LOW COST

Safety Grip-Strut is a new basic material. All one piece, steel or aluminum, in various sizes and gauges. Sold like lumber, used like lumber and stocked in your storeroom like lumber. Ideal for on-the-job fabricating. Not welded, riveted or expanded. It presents an open space, in a diamond shaped pattern, in excess of 75% of the area for ready access of light and air and gives a positive NON-SKID footing in all directions. Ideal for stair treads, fire escapes, cable trays, work platforms, catwalks, flooring and for original equipment safety treads. Your own mechanics can install it—it's inexpensive, yet permanent and safe.

Write today for new catalog showing loadings and methods of easy application in your plant.

Distributors in all principal cities.

GRIP-STRUT division
THE GLOBE COMPANY
Manufacturers since 1914

4010 S. Princeton Avenue • Chicago 9, Ill.

If you write maker identify as IEN - 10207

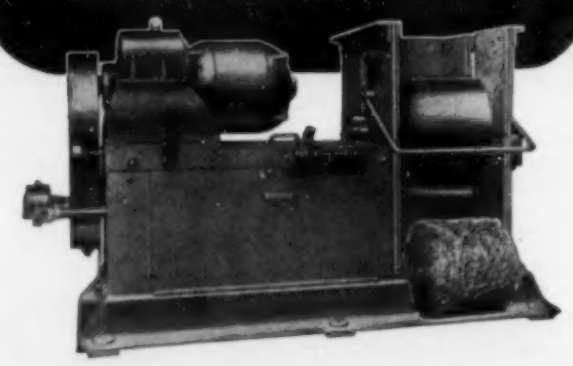
NOW! Bundle Scrap

into

18" and 24" Diameter Bundles

EASY TO HANDLE, SHIP, REMELT OR STORE . . . with the

McLanahan SCRAP BUNDLER



Designed for efficient bundling of scrap wire and strip metals, anything of a stringy nature, the new McLanahan Scrap Bundler "wraps" scrap into compact cylinders for easy handling. Fast and economical in operation, this new machine is the answer to your scrap bundling problems.

Write for new "Scrap Bundler" Bulletin Today!

McLANAHAN and STONE Corp.

Hollidaysburg, Pa. SINCE 1835

If you write maker identify as IEN-10209

There's no caster job too tough for the rugged, heavy-duty Hamilton Air-Flo!

Cast steel top plate and yoke—heavy plate steel legs—1" diameter king bolt—double raceways, precision machined—wide-faced roller bearing wheels—hardened and ground spanner bushings—these are some of the features that make Air-Flo the dependable caster buy. Wheel sizes from 5" to 10" diameter—semi-steel, rubber-tired or molded plastic.

The Air-Flo is just one of many types of Hamilton casters—a model and size for almost every industrial purpose. Ask for catalog showing the complete line.

THE HAMILTON CASTER & MFG. CO.
1655 DIXIE HIGHWAY, HAMILTON, OHIO

If you write maker identify as IEN-10210

MISS CHIEF SAYS: **FASTEST PIPE THREADER EVER BUILT!**

Rugged *dependability* plus *speed* make the CHIEF first choice of plumbing contractors in Southern California, *America's most competitive building market!*

The CHIEF is more than twice as fast as other pipe threaders. You can thread, cut and ream pipe with a CHIEF before you are able to chuck it with ordinary threaders!

Compare these CHIEF Features:

- *Automatic double chuck*
- *Quick-opening die heads*
- *Reams while threading*
- *Perfect for make-up*
- *Completely portable—weighs only 170 lbs.*

HERE'S HOW THE CHIEF SAVES YOU MONEY

Average time required by five competitive makes of pipe threaders to chuck, thread, ream and cut pipe (½" to 2").	**63 seconds**
Average time required by the CHIEF	**26 seconds**
The CHIEF enables operator to do twice as much work in same time. Based on $3.00 hourly rate, the CHIEF saves	**$12.00 per day**

Ask your jobber for a demonstration or write for full information. Dealer inquiries invited.

GAINES-COLLINS
Quijada Tool Division
5474 ALHAMBRA AVE., LOS ANGELES 32, CALIF. • CApitol 6133

If you write maker identify as IEN-10212

Protecting - Respirator with filters to prevent paint clogging

Source: CHICAGO EYE SHIELD CO.
2300 Warren Blvd., Dept. IEN, Chicago 12, Ill.

Cesco No. 99

Filter pads, held in place by retainers, apply over the regular filter cartridges in this new organic vapor respirator. They are held in place by screw type retaining rings for quick replacement. They prevent the regular respirator cartridges from clogging when the respirator is used in spray painting service.

Assembly includes a soft rubber face piece and elastic head band. The design prevents interference with eye protecting equipment such as goggles.

If you write maker identify as IEN-10213

Cleaning - Alkaline material removes rust, scale from ferrous metal

Source: OAKITE PRODUCTS INC.
116-A Rector St., Dept. IEN, New York 6, N. Y.

Technical data upon request

Rustripper is a new powdered material that is employed in hot or cold solution with water to remove rust and heat scale from ferrous metals. It also applies, in certain cases, to descale heat-treated titanium. Deep pitted rust is removed by application of direct current in the solution. Heat scale separates from the metal when reverse current is applied.

The material will not attack sound metal or cause hydrogen embrittlement. It can be employed in ordinary steel tanks. It creates no troublesome fumes and does not present any disposal problem. It will strip certain types of paint at the same time that it removes rust. It leaves a protective film.

If you write maker identify as IEN-10214

Signaling - Pressurized gas unit warns against fire by sound and odor

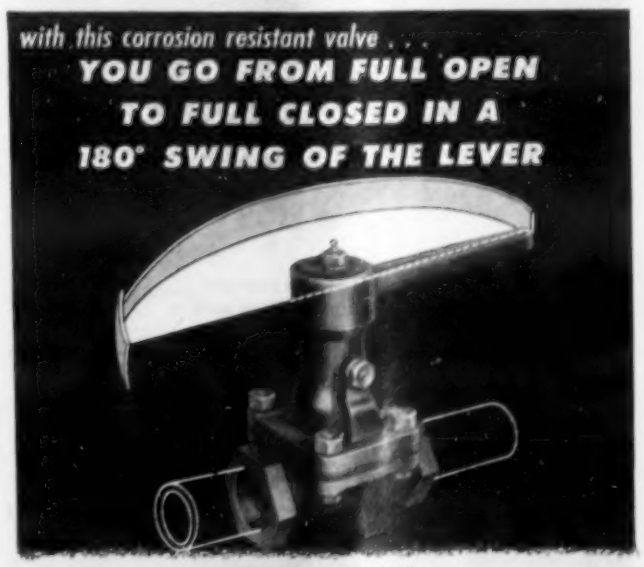
Source: RICHARD STUART MFG. CORP.
1700 Walnut St., Dept. IEN, Philadelphia 3, Pa.

Please note our error

We should have quoted a price of $7.90 for the new Fire Sentry and its supporting bracket rather than the $1 that we did quote in IEN-7843-54. The $1 covered the price of the support bracket only in which the unit can be mounted if it is not to be set on a shelf. The unit itself lists at $6.90. A rise in temperature to 135 deg. F. opens a valve and releases gas contained under pressure. This gas blows a whistle mounted on the housing. It also projects a perfumed odor into the air to warn deaf persons.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10215



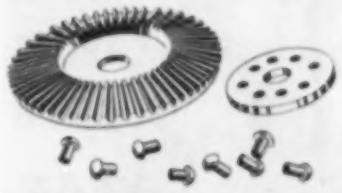
HILLS-McCANNA
Quick Opening
SAUNDERS PATENT DIAPHRAGM VALVES

Dependent upon materials and size, Hill-McCanna Saunders Patent Valves are suitable for temperatures to 400°F., pressures to 150 psi. Write for descriptive literature.

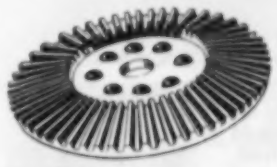
HILLS-McCANNA
Saunders Patent
diaphragm valves
HILLS-McCANNA COMPANY, 2347 Nelson Avenue, Chicago 18, Ill.

If you write maker identify as IEN-10216

How to speed riveting with DENISON MULTIPRESS®



BEFORE RIVETING
. . . two pieces, eight rivets



AFTER RIVETING
. . . complete ring gear assembly

Output increased nine times per manhour when manufacturer switched to Denison Multipress for riveting two halves of a ring gear assembly.

OLD METHOD (Pneumatic Hot Riveting)—three operators . . 10 assemblies an hour.

MULTIPRESS METHOD (Cold Riveting)—one operator . . . 30 assemblies an hour.

NEW 24-PAGE BULLETIN shows how Denison Multipress cuts costs and manhours . . . in riveting, swaging, drawing and hundreds of other jobs in the one to 75-ton pressure range. Free. **Write to: THE DENISON ENGINEERING COMPANY, 1234 Dublin Rd., Columbus 16, Ohio.**

DENISON *Hydr*OIL*ics*

PUMPS • MOTORS • CONTROLS • PRESSES

If you write maker identify as IEN-10217

PROBLEM: To get accurate positioning from female centers.

ANSWER: Lap the centers.

Ex-Cell-O Center Lapping Machines correct inaccuracies of rough centers, assuring GREATER PRECISION from your present equipment. Center lapping reduces manufacturing costs by minimizing waste from grinding rejections; decreases assembly time because of closer tolerances; All the facts are in Bulletin No. 40271. Write Ex-Cell-O for a copy today.

53-29

CENTER LAPPING MACHINES BY EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN
XLO

If you write maker identify as IEN-10218

PIONEER BELT DRIVEN GENERATORS

the portable power you need in your plant to **DELIVER CURRENT EFFICIENTLY & ECONOMICALLY!**

2400 watt Generator with 4.8 H.P. gas engine

6500 watt Generator with 12 H.P. gas engine

For portable power inside or out the plant, Pioneer Generators are *dependable* and *capable* of operating under *all* weather conditions. For Stand-By insurance when regular power fails, generators can run power tools and lights to meet all your needs. *Over 20 years* of manufacturing experience gives you engineering know-how and efficiency. **Write today** for catalogs and prices on Pioneer 250 to 12000 wat Generators for every industrial use.

PIONEER Gen-E-Motor Corporation
5831 West Dickens Avenue • Chicago 39, Illinois

If you write maker identify as IEN - 10219

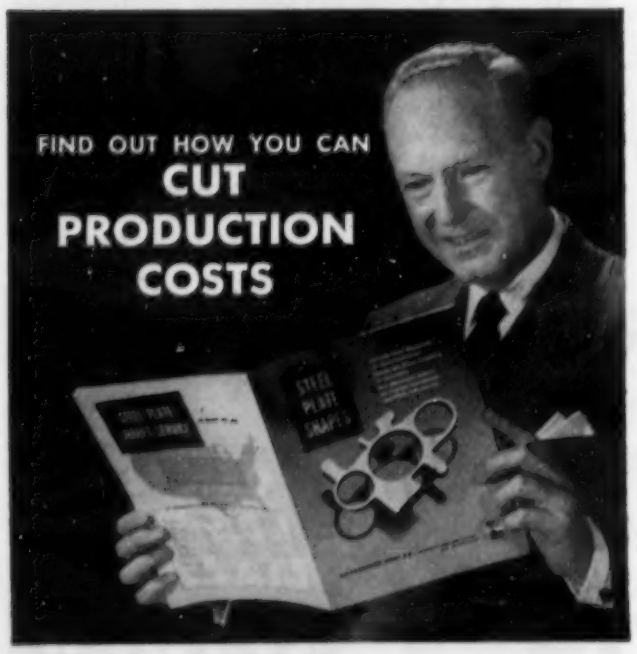
CAPCO Dock Covers completely enclose the space between car and building doorways protecting loading and unloading during bad weather...preventing accidents... insuring against loss of heat or refrigeration. 51 different models in any size for every loading problem.

CAPCO

Write for literature and name of nearest distributor.

• 622-24 PROSPECT AVENUE • KANSAS CITY 24, MISSOURI

If you write maker identify as IEN - 10220



This new book on Steel Plate Shapes Service can show you how to save time, money and manpower in production with preformed component parts. Here's how this booklet can help you to cut production costs.

Steel Plate Shapes Service helps you eliminate one or more production steps, free your machines for other work, speed your manufacturing operations. Formed to close tolerances from rolled steel plate, these shapes save fit-up time . . . can often be used without machining. You save by paying freight only on the part you use, reduce costly steel plate inventories, get rid of the headache of scrap handling and scrap losses.

You get plate that's shaped to save you money—formed to your specifications. We work directly from blueprints. Over 150 major machines are available to flame-cut, shear, blank, press, bend or otherwise form rolled steel plate. Parts can be furnished as formed, or rough- or finish-machined. We also maintain a large stock of standard dies of all types.

FOR FULL INFORMATION on Steel Plate Shapes Service, send for Bulletin 712. The coupon or a request on your company letterhead will bring a free copy at no obligation. Address By-Products Steel Co., 676 Strode Avenue, Coatesville, Pa.

LUKENS

BY-PRODUCTS STEEL CO.

A Division of Lukens Steel Company

BY-PRODUCTS STEEL CO.
675 Strode Avenue
Coatesville, Pa.
Please send me a free copy of Bulletin 712.

NAME.....

TITLE.....

COMPANY.....

CITY.....ZONE.....STATE.....

Brief reviews to advise you of available new information published by the manufacturers covering products they offer.

If you write maker identify as IEN - 0782

AIR CONDITIONING . . Electric control centers for heating, ventilating, air conditioning are ready to place. Reasons for specifying are stated in 8-page Bulletin F-5265-1. Barber-Colman Co., 1300 Rock St., Dept. IEN, Rockford, Ill.

If you write maker identify as IEN - 0783

ALUMINUM . . Strong natural-aging aluminum alloy resists shock and corrosion, has high yield strength, machinability. Details on this and a line of copper-base alloys in new 56-page Data Book. Frontier Bronze Corp., 4872 Packard Road, Dept. IEN, Niagara Falls, N. Y.

If you write maker identify as IEN - 0784

BALANCING . . Static and dynamic balancing machines for automatic production operations are described in 24-page Bulletin 49 along with Electodyne principle of measuring amount and location of unbalance. Tinius Olsen Testing Machine Co., 3047 Easton Road, Dept. IEN, Willow Grove, Pa.

If you write maker identify as IEN - 0785

BATTERIES . . Eveready high-voltage batteries in four stock ratings of 225 to 510 volts for portable electronic equipment. Battery Engineering Bulletin 4, revised edition, 4 pages. National Carbon Div., Union Carbide & Carbon Corp., 30 E. 42nd St., Dept. IEN, New York 17, N. Y.

If you write maker identify as IEN - 0786

BEARINGS . . Thin-section ball and roller bearings to 40 in. id. carry the name Reali-Slim. Engineering Catalog 54, 28 pages, gives capacity and design data, speed and life factors, size and capacity tables. Kaydon Engineering Corp., 930 W. Sherman Blvd., Dept. IEN, Muskegon, Mich.

If you write maker identify as IEN - 0787

TUBE BENDING . . Hand tools to bend, flare, cut, ream, bur, pinch metal tube. Individual tools and kits, with list prices, in 16-page pocket booklet 3030. Imperial Brass Mfg. Co., 1200 W. Harrison St., Dept. IEN, Chicago 7, Ill.

If you write maker identify as IEN - 0788

BRASS . . Machining instructions for brass, bronze and other copper alloys cover tools, speeds, feeds for turning, drilling, milling, tapping. Publication B-3, initially assembled in 1953, 32 pages. American Brass Co., 696 S. Main St., Dept. IEN, Waterbury 20, Conn.

If you write maker identify as IEN - 0789

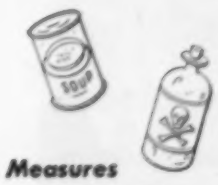
BUILDING . . Sandwich panels are laminated from thin faces over a thick honeycomb or foam core. Properties and methods of attachment in 32-page "Bondolite". Goodyear Aircraft Corp., 1210 Massillon Road, Dept. IEN, Akron 15, Ohio

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

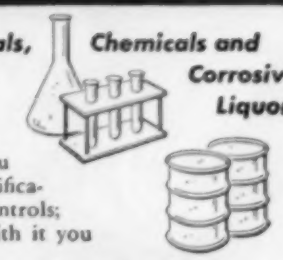
If you write maker identify as IEN - 10222

If you write maker identify as IEN - 10223

ALL STAINLESS STEEL METER
MEASURES CORROSIVE LIQUIDS



Measures Foods, Pharmaceuticals, Chemicals and Corrosive Liquors



Constructed *inside and out* of stainless steel, this meter resists corrosive attack and is easy to clean. With it you can get positive metered identification for inventory and cost controls; for tax analysis purposes. With it you can also get accurate quantity control over liquids entering into batch mixed formulas. Rated capacity 100 gpm. Automatic shut-off registers and remote registration systems can be furnished. Write for bulletin OG-403 *Rockwell Manufacturing Co., Dept. B5404R, Pittsburgh 8, Pa.*

YOU CAN RELY ON ROCKWELL

Rotocycle meter, cut away to show the all-revolving rotor construction.

ROCKWELL INDUSTRIAL METERS

If you write maker identify as IEN - 10224

Stop Slamming Doors!

KANT-SLAM Hydraulic Door Check

Closes Stops

Large or Small Doors, Screen Doors and Gates—Easily, Gently Smoothly Slamming . . . Banging . . . Broken Door Glass . . . Insects . . . Drafts . . . Heat Loss

$9.95

ATTRACTIVE, DARK BRONZE, METALLIC LACQUER FINISHED-HAMMERED BRONZE EFFECT

KANT-SLAM closes doors with efficiency of human hand. Hydraulic action—NOT an air check—piston works in oil. 3 years trouble-free service guaranteed. Price about half of other hydraulic controls.

Works any place along hinge side of door—top, middle or bottom—either right or left hand doors. KANT-SLAM is completely self-contained—door and hinges are absolutely free of any strain or pressure. Holds door open when past 90 degrees.

Only one size Check required—three sizes easily detachable springs available for various size doors. Simple adjustment for closing speed.

Order on 30 Days FREE TRIAL at $9.95 delivered—or Write for Complete Details.

Used by Hundreds of Nationally-Known Firms

Oak Ridge Atomic Energy Plant, University of North Carolina, Great A. & P. Tea Co., Bethlehem Steel Co., General Electric Co., Rutgers University, Northern Aircraft, Fuller Brush Co., Carnation Co., Shell Oil Co., Kraft Foods.

KANT-SLAM DOOR CHECK CO.

334 W. Spring St. Bloomfield, Indiana

If you write maker identify as IEN - 10225

LOW COST, RUGGED Hydraulic SKID TRUCKS for loads up to 1000 lbs!

- ★ HYDRAULIC RAISING & LOWERING
- ★ PUSHES OR PULLS
- ★ FLOOR PROTECTIVE WHEELS
- ★ ALL STEEL WELDED CHASSIS
- ★ LIGHT WEIGHT
- ★ COVERED STEEL PLATFORM USED AS PLATFORM TRUCK

● Fully illustrated bulletin HST-19 describes this versatile truck in detail. Write for it today. Catalog GP-17 describing many standard Ironbound cost-saving units will be sent you without obligation, too.

IRONBOUND BOX & LUMBER COMPANY
50 Heffman Place, Hillside, New Jersey

Ironbound — **IRONBOUND**

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, SKID TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS

If you write maker identify as **IEN - 10226**

...a door to faster production—easier fabrication—cost savings in your plant. This informative, fully illustrated booklet describes the whole range of Tufflex cellulose felted fibers for cushioning—protective padding—sound absorption—thermal insulation—and many other uses. It tells why Tufflex, available in many different types—is finding new jobs every day in American industry. Send now for your free copy of "The Expanding Miracle of Tufflex"—there's no obligation. Wood Conversion Company, Dept. 126-94, First National Bank Building, St. Paul 1, Minnesota.

KEEP YOUR EYES ON **TUFFLEX***

Guaranteed by Good Housekeeping

*Reg. U. S. Pat. Off.

If you write maker identify as **IEN - 10227**

Well-stacked!

Use your air space from floor to ceiling to stack materials on E.M.I. racks. They save valuable floor space, protect workers and stock, and speed up materials handling in warehouse, plant or dock. Low-level stock is never tied up. Stationary or portable racks fabricated of strong, square tubular steel are available to stack most materials. Sections can be adjusted to fit any space or unit load. E.M.I. engineers will design special racks for your materials. You save money, space and time with E.M.I. racks.

WRITE FOR NEW ILLUSTRATED CATALOG

EQUIPMENT MFG. INC.
21564 Hoover Rd., Detroit 5

- Pallet Racks
- Portable Stock Racks
- Dolly Racks *(Illustrated)*
- Coil Racks
- Drum Racks
- Special Racks for All Applications

NEW LITERATURE —*Continued*

If you write maker identify as **IEN - 0790**

CHUCKS . . Collet chucks for standard and automatic machines, also tap holders, air-operated chucks, expanding mandrels, indexing fixtures, boring bars. Catalog K, "Precision Tools," 36 pages. Erickson Tool Co., 23rd & Hamilton, Dept. IEN, Cleveland 14, Ohio

If you write maker identify as **IEN - 0791**

ELECTRIC CIRCUITS . . Copper-clad plastic sheet in sizes to 36 by 96 inches for printed-circuit manufacture. Bulletin 457, 12 pages, tells how to select the sheet, methods of making circuits, fabricating suggestions. Formica Co., 4614 Spring Grove Ave., Dept. IEN, Cincinnati 32, Ohio

If you write maker identify as **IEN - 0792**

ELECTRIC CIRCUITS . . Carry-through design printed circuit; continuity through holes permits selective dip-soldering. Bulletin 106, 4 pages. Insulated Circuits Inc., 115 Roosevelt Ave., Dept. IEN, Belleville, N. J.

If you write maker identify as **IEN - 0793**

ELECTRIC CIRCUITS . . Printed circuits and sub-assemblies produced by etched, plated and plated-through methods. "Why Wire?", 8-page bulletin presents suggestions for design. Photocircuits Corp., Dept. IEN, Glen Cove, N. Y.

If you write maker identify as **IEN - 0794**

OVER RUNNING CLUTCH . . Free wheeling, indexing, single-direction drive are functions of company's Series-200 cam clutch. Seven 1½ to 3½-in. od. models have torque rating of 10 to 500 ft. lb. Catalog C-12-54, 4 pages. Morse Chain Co., 7601 Central Ave., Dept. IEN, Detroit 10, Mich.

If you write maker identify as **IEN - 0795**

ELECTRIC CONNECTORS . . Glass-to-metal hermetic seals in single and multiple feed-through types, tubular button, header, octal-plug designs, all detailed in 20-page Catalog. Hermaseal Co., Dept. IEN, Elkhart, Ind.

If you write maker identify as **IEN - 0796**

ELECTRIC CONNECTORS . . Hermetic-seal terminals, multiple header assemblies, standard and special, in 40-sheet looseleaf "Vitroseal Catalog." Vitroseal Corp., 909 E. Westfield Blvd., Dept. IEN, Indianapolis 20, Ind.

If you write maker identify as **IEN - 0797**

ELECTRIC CONNECTORS . . Full-scale dimension drawings in 40-page Catalog 6 on soldering and solderless lugs, terminals, brackets, tube-socket contacts, washers and other parts. A two-page picture index helps. Malco Tool & Mfg. Co., 4025 W. Lake St., Dept. IEN, Chicago 24, Ill.

If you write maker identify as **IEN - 0798**

PROCESS CONTROL . . Pneumatic, electric, mechanical methods are employed to receive process variables by the company's meters and controls. Bulletin 17-F, 16 pages, reviews equipment to handle 18 variables. Bailey Meter Co., 1050 Ivanhoe Road, Dept. IEN, Cleveland 10, Ohio

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as **IEN - 10229**

Wickwire Rope slings are offered in both braided and single-part construction to meet a wide variety of service requirements. For additional information write to Wire Rope sales office, Palmer, Mass.

WICKWIRE ROPE
CF&I PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

2602

If you write maker identify as **IEN - 10230**

ENGRAVE

NAME PLATES • PANELS • DIALS

in your own shop

10,000 IN USE Accepted by all leading manufacturers as the speediest, most versatile portable engraver. Only the NEW HERMES has these patented features:

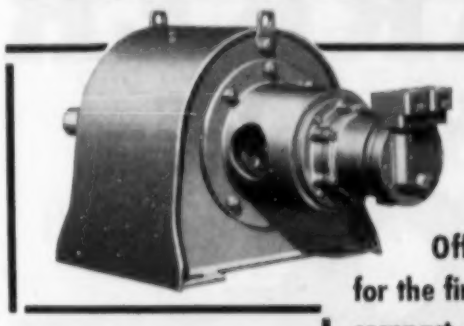
- Adjustable for 15 ratios.
- Self-centering holding vise.
- Automatic depth regulator.
- Adjustable copy holders.

Send direct to us for booklet IM 23

NEW HERMES ENGRAVING MACHINE CORP.
13-19 University Place • New York 3, N. Y.

If you write maker identify as **IEN - 10231**

NOW! NEW OILGEARDUCERS



Offering for the first time compact, packaged, fluid power output drive units!

Oilgearducers are new integral output drive units combining Oilgear Fluid Power axial piston motors and Falk All-Steel Reducers. There are horizontal and vertical models, concentric and right angle types and single, double, triple and quadruple reduction. Now, for the first time you can get a complete, easy to install, "ANY-SPEED" output unit for your high torque, low maximum speed drives. When used in combination with Oilgear Fluid Power Pumps, these reversible Oilgearducers provide infinite variability of speed, absolutely controlled rate of acceleration and deceleration, smooth, swift reversal, cushioned braking. All these together with major economies in motor, circuitry and power requirements. This new Oilgearducer "Any-Speed" output unit is available in sizes from 1 to 20 h.p. It is unequalled for applications as diverse as can-filling, paper machines, centrifugals, cable wrappers . . . and in automation or feed back applications where synchronization is an absolute necessity. Write now for new bulletin 56610. THE OILGEAR COMPANY, 1567 W. Pierce St., Milwaukee 4, Wis.

If you write maker identify as **IEN - 10232**

Wire Shapes and Forms TO YOUR SPECIFICATIONS

- Your wire forms are produced fast, accurately and at low cost with Sommer mass-production methods.

Speedy, automatic plating equipment handles either large or small assemblies. Popular new Zinc Iridite process adds a bright, durable, economical finish.

Sommer offers complete forming, stamping, cut-threading and butt-welding services. Let us work with you in designing and producing any wire shapes or forms needed for your defense contracts. Send sample, blueprint or drawing—see how Sommer can save you time and money.

SOMMER METALCRAFT CORPORATION
300 POSTON DRIVE
CRAWFORDSVILLE, INDIANA

If you write maker identify as IEN - 10233

JOHNSON BAND SAWS

SPECIFICATIONS — MODEL J

BOTH WET AND DRY MODELS

Capacity—10" rounds, 18" flats.
Motor—½ H.P. Ball Bearing any voltage available, single or polyphase. (¾ H.P. on wet machine).
Wheel Diameters—16".
Floor Space—66" x 31".
Bed—11" wide, 44" long, 6" deep, 24" high.
Overall Height—(Closed)—39".
Blade Length—11'5" x ¾" x .032". All Standard blades of these specifications can be used.
Weight—Approximately 750 lbs. Crated 800 lbs. Boxed for export 875 lbs.
Speeds—35, 90, 130, 190 feet per minute.
Casters—Optional at slight extra cost.

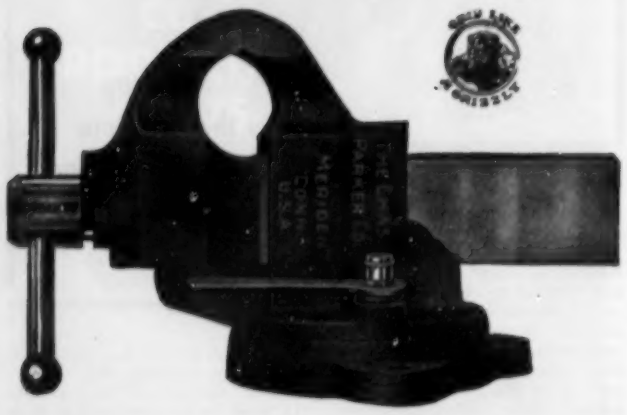
MODEL B, 5" x 10" CAPACITY, ALSO AVAILABLE

WRITE FOR DETAILS

JOHNSON MANUFACTURING CORP.
ALBION, MICHIGAN

If you write maker identify as IEN - 10234

PARKER VISES



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Combination Pipe • Hinge Pipe
Woodworkers • Utility

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SAVE 50% and more in Labor - Material with FencPainteR

For WOOD - METAL BRICK - STONE CONCRETE

Hundreds of industries and institutions all over America are using the FencPainteR applicator system of painting at immense savings. It's five times faster than brushing methods. Irregular and corrugated surfaces painted with the same facility and covering power as smooth surfaces. One concern painted 6 ft. wire fence at a total cost of only 20c per lin. ft. FencPainteR enamels contain only top-notch ingredients — go much farther — are more economical in the long run.

SPECIAL TRIAL OFFER — Including industrial size FencPainteR and 5 gal. FencPainteR aluminum enamel, 1 gal. solvent. Complete, only **$57.00.** Enough to do 300 lin. ft. of 6 ft. chain link fence. (Add $5.00 for gray, white or black — $10.00 for red or green).

THE ONLY ROLLER MADE WITH CAPILLARY ATTRACTION (PAINT HOLDING POWER)

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MAIL COUPON for new 32 page illustrated brochure with full details covering FencPainteR products and their use.

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☐ Please rush Free 32 page Brochure
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City _____ State _____

NEW LITERATURE —Continued

If you write maker identify as IEN - 0799

PROCESS CONTROL . . Process variables are transmitted from a remote location by telephone or private wire, microwave and other radio, by Metameter telemetering equipment. Diagrams in 44-page Bulletin M-1710 show how. Bristol Co., 107 Bristol Road, Dept. IEN, Waterbury 20, Conn.

If you write maker identify as IEN - 0800

CONVEYING . . Power belt conveyor comes in four roller sizes, a number of frame construction designs, three types of drive, and a variety of accessories to suit the job. "Power Conveyor," 24 pages. Food Machinery & Chemical Corp., 3075 Fourteenth St., Dept. IEN, Riverside, Calif.

If you write maker identify as IEN - 0801

DOORS . . Lift truck push their way through the DuraDor factory door without damage, due to its rubber-covered steel-reinforced plywood-core construction and to its sturdy hinges. Bulletin 52, 4 pages. American Hard Rubber Co., 93 Worth St., Dept. IEN, New York 13, N. Y.

If you write maker identify as IEN - 0802

DOORS . . Rolling steel doors, grilles and shutters for hand and power operation. Catalog G-55, 16 pages, carries sample specifications, includes data on operators. R. C. Mahon Co., Box 4666, Dept. IEN, Detroit 34, Mich.

If you write maker identify as IEN - 0803

DRAFTING . . Circular machine draws precise ellipses, spirals, helixes, arcs quickly and without involved calculations. It is particularly suited for three-dimensional views. Instructions in 16-page Booklet A-2126. Charles Bruning Co., 4700 Montrose Ave., Dept. IEN, Chicago 41, Ill.

If you write maker identify as IEN - 0804

DRILLING MACHINES . . Single and multiple-spindle drilling and tapping machines, each spindle with individual motor drive. Bulletin 150, 8 pages. Edlund Machinery Co., 37 Huntington St., Dept. IEN, Cortland 44, N. Y.

If you write maker identify as IEN - 0805

VARIABLE SPEED DRIVE . . Fractional-hp. unit combines eddy-current coupling, constant-speed induction motor and electronic speed control in self-contained assembly. Details in Ajusto-Spede Bulletin FAS. Eaton Mfg. Co., Dynamatic Div., 3307 Fourteenth St., Dept. IEN, Kenosha, Wis.

If you write maker identify as IEN - 0806

VARIABLE SPEED DRIVE . . Oilgearducer is a combination hydraulic motor and speed reducer to use with a variable-delivery pump for speed from 1.7 to 1,170 rpm. in a range of ratios. Rating is to 20 hp. Bulletin 56610, 8 pages. Oilgear Co., 1585-B W. Pierce St., Dept. IEN, Milwaukee 4, Wis.

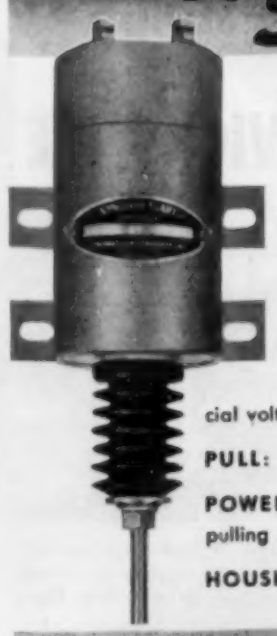
If you write maker identify as IEN - 0807

DRIVES . . Linear and rotary actuators for aircraft include motor, gear reduction, brake and other components. Data on some 20 models in 64-page "Electric Actuator." AiResearch Mfg. Co., 9851 Sepulveda, Dept. IEN, Los Angeles 45, Calif.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10236

HEAVY DUTY DC Solenoids



Synchro-Start MODEL SD SOLENOID has been developed to meet heavy duty requirements. It has an exceptional amount of power over a long stroke. The SD Solenoid is fully enclosed in a sealed case protecting it from infiltration of dust and liquids.

VOLTAGE: SD Solenoids can be furnished in all standard and special voltages up to 115 Volts D.C.

PULL: 10 lbs. over 1½ inch stroke.

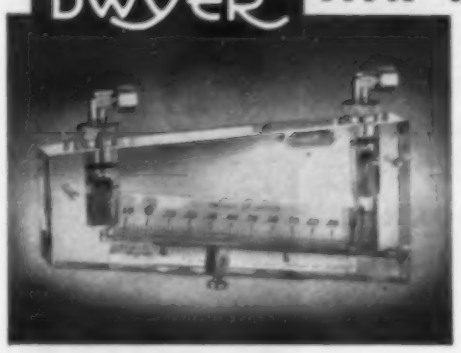
POWER CONSUMPTION: 550 Watts pulling and 8 Watts holding.

HOUSING DIMENSIONS: 4⅝" x 2½".

SYNCHRO-START PRODUCTS
8151 N. RIDGEWAY AVE. • SKOKIE, ILL.

If you write maker identify as IEN - 10237

DWYER AIR FILTER GAGE



A constant visual check of filter efficiency on ANY system

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(Exclusive 3-way Dwyer Vent Valve, optional)

Determines exact filter efficiency the *only* practical and economical way—via pressure drop. Dwyer's low first cost is repaid over and over thru savings in replacement and service time, plus maintained optimum filter efficiency.

Break-proof plastic construction, lifelong accuracy, simple installation, no moving parts to ever wear out or get out of adjustment. Six different scales. A complete unit with all necessary tubing, fittings, etc.

Write for informative catalog page

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If you write maker identify as IEN - 10238

NOW AVAILABLE

Grafo

COMPLETELY NEW CATALOG!

Listing and describing the various GRAFO Colloidal Graphite products being extensively used in industry. If you need a lubricant to protect against high heat conditions. . . . If you need a dry lubricating film . . . If you need a lubricant that will become a part of the friction surface . . . Then advise us of your needs and let our engineers help solve your problems at no cost to you.

Our new catalog available upon request on Company letterhead

GRAFO COLLOIDS CORPORATION

MANUFACTURERS OF Grafo COLLOIDAL PRODUCTS

SHARON, PENNSYLVANIA

If you write maker identify as IEN - 10239

New TO CUT YOUR COSTS!

Select the drive that *REALLY FITS* — no larger — no smaller — from the *NEWEST* most *COMPLETE LINE* of Herringbone Reducers Available Anywhere.

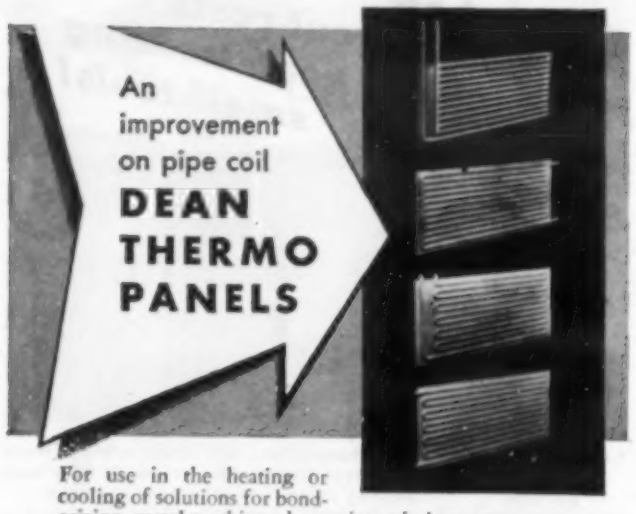
CAPACITIES UP TO 1950 HORSEPOWER

W. A. JONES FOUNDRY & MACHINE CO.
4469 Roosevelt Road, Chicago 24, Illinois

Our NEW Herringbone Speed Reducer Catalog No. 100 is available from your local Jones Representative, or write directly to us. This new approach to speed reducer cataloging is specially designed to help you select with accuracy and confidence the correct Herringbone Gear Drive for your specific application.

Jones *Better Drives ... Since 1890*

If you write maker identify as IEN-10240



For use in the heating or cooling of solutions for bonderizing, metal washing, degreasing, plating, etc. Low in first cost . . . light weight . . . space-saving . . . do away with expensive pipe coiling . . . provide efficient heat transfer.

Available in special shapes such as "U"s, "L"s, and cylinders . . . and in a wide range of materials, including iron, stainless steel, Monel and other special alloys.

Send for FREE bulletin giving facts and prices. **Dept. IEN9**

Manufacturers Representatives Wanted.

Write for details. Choice territories now open.

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DIVISION
DEAN PRODUCTS, INC. • 616 Franklin Ave., Brooklyn 38, N. Y.
STerling 9-5400

If you write maker identify as IEN-10241

Plenty of prints—fast and cheap!

An Ozalid® machine in your office is your best assurance of a ready supply of low-cost, perfect prints. A print can be made in less than a minute, for a few cents.

Ozalid reproduction is instantaneous, on chemically coated Ozalid stock. The print is delivered dry, ready for use, clear and legible; won't fade, curl, or shrink. Deletions and changes can be made on an Ozalid print—detail added for wiring, pipes, ducts, vents, special installations—without altering or doing over the master drawing.

AN Ozalid machine copies anything that is drawn, printed, typed, or written on translucent paper, fabric, film; makes prints on paper, fabric, film. It can also copy lists, specifications, contracts, forms and records as well as drawings.

There's a model for your requirements. Call the nearest Ozalid distributor (see phone book) for a demonstration. Or write for free brochure to 123 Ozaway, Johnson City, N. Y.

OZALID—A Division of General Aniline & Film Corporation . . . *From Research to Reality* . . . In Canada, Hughes Owens Company, Ltd., Montreal.

Ozalid Printmaster *makes copies up to 54 inches wide, at speeds up to 30 feet a minute. Simple to operate. Low maintenance. Prompt service.*

OZALID

If you write maker identify as IEN-10243

Relay - Telephone type dc., bar type contacts, 3 amp. on 26 volts

Source: ADVANCE ELECTRIC & RELAY CO.
2435 N. Naomi St., Dept. IEN, Burbank, Calif.

Open or sealed

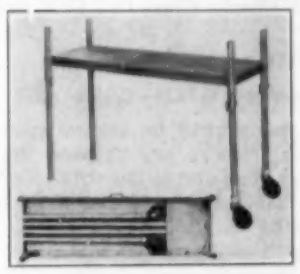
A **retaining spring,** in the magnetic assembly of this new Type TQ miniature relay, maintains the armature rigidly in place in three major axes. It eliminates need for a hinge pin and makes the unit friction free. Bar type contacts are welded in place on the contact fingers. Ceramic bumpers are secured to the fingers mechanically so they cannot loosen in service. Teflon, ceramic or silicone insulation can be employed on the nylon bobbin.

Coil size and shape are maintained without impregnation or filler. Ambient temperature range is between minus 55 and plus 125 deg. C., with a teflon insulated coil. Operation is on 90 milliwatts or less. The relay occupies 0.94 cu. in. of space. It weighs 1.2 oz. and is available in contact combination to 6-pole double-throw. It is vibration resistant to 10g.

If you write maker identify as IEN-10244

Furniture - Portable table, adjustable height for utility use

Source: BIL-JAX INCORPORATED
102 Wyse Road, Dept. IEN, Archbold, Ohio



For many uses

The **steel top** of this new table is fitted with corner sockets into which supporting legs are inserted. Pins apply through holes in the sockets and the legs to position the top at various distances above the floor. Two of the legs are fitted with casters. The other two are plain. All four legs can be removed and stowed in clip type holders beneath the top. Then a handle on one side of the top is used to carry the unit from one location to another.

The top surface measures 28 by 48 inches. The legs, made of ½ in. steel tube, are 40 in. in length. Weight is 47 pounds.

If you write maker identify as IEN-10245

R. G. LeTourneau, Inc., Mobberly Ave., Dept. IEN, Longview, Texas, has applied its pneumatic tired motor driven wheels with integral electric motor and gear reduction in construction of a train of load carrying cars and a power generating locomotive. The locomotive carries a diesel engine and generator to supply power to the motors in each of the car wheels. Individual cars ride on the wheels and are driven by them. Wheel diameter measures 5 to 10 feet. The train is coupled together so individual units will "track". The complete unit will travel over smooth or rough ground. The motors provide regenerative braking action also so no brake shoes are required to retard the movement on downhill runs or to stop the train.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10246

with **AURAND** CLEANING TOOLS

ELECTRIC or PNEUMATIC

Clean off accumulation of scale, paint, rust or any foreign matter from any hard surface with Aurand Cleaning Tools. Toothed cutting wheels, loose pinioned on rotating head chip away accumulations at high speed. Positive depth shoe prevents cutting into permanent surface and assures uniform cleaning of entire area.

FOR FULL DETAILS, WRITE DEPT. 649

AURAND MFG. & EQUIP. CO.
2643 Colerain Avenue • CINCINNATI, OHIO

If you write maker identify as IEN-10247

NEW! Rapistan® SEALED CASTER

at ⅓ less cost than ordinary non-sealed casters!

5200 Series Rapistan Sealed Caster with 6" Sealed MB Demountable Wheel.

Now, for the first time, this revolutionary Rapistan development gives you a heavy-duty cold-forged *sealed* caster at ⅓ *less cost than ordinary leading non-sealed casters!* Save in longer caster life, improved performance, lower maintenance. Dirt, acids, alkalis, brines, other chemicals are *sealed out* of coin-hardened raceways. Ask your Rapistan distributor to show you the comparative service chart, or write direct.

YOURS FREE! *Write for handbook describing Rapistan casters including new 5200 Series.*

The RAPIDS-STANDARD COMPANY, Inc.
281 Rapistan Building • Grand Rapids 2, Michigan

Rapistan® FASTEST GROWING NAME IN CASTERS

If you write maker identify as IEN-10248

From a portable power gun to the heavy duty barrel pumps for a plant-wide system... and everything in between!

ALEMITE ELECTRIC POWER LUBE EQUIPMENT

The Alemite Line of Electric Power Lubrication equipment is the most complete in the world. There is sure to be the *exact* equipment your plant needs—just right to solve any lubrication-protection problem.

Alemite Model 6735—An Electric Barrel Pump that pumps lubricant wherever needed, direct from 400 pound drums. Lubricant stays "refinery clean" from barrel to bearing. Up to 3,000 pounds pressure.

Alemite Model 7182-B—A portable power gun, the Electric Porta-Kart. Goes anywhere in the plant. Only 18" wide, so it navigates narrow aisles with ease. Brings power lubrication right to the machine!

Write for ***FREE*** *catalog today!*
Dept. K-94
1850 Diversey Pkwy., Chicago 14, Illinois

ALEMITE

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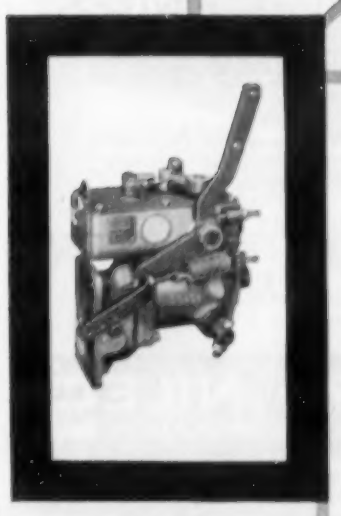
high in performance

low in cost

parts & service in the field



PIERCE GOVERNORS
for all Gas and Diesel Engines

Pierce centrifugal governors are your most dependable and efficient control mechanisms for industrial engines . . . from small generator sets to monster power units . . . gas (LPG), gasoline or diesel. For engines requiring extra power to position fuel rack or valve, the Pierce centrifugal with hydraulic booster (for original equipment only) is ideal! Replacement governors and parts are available through your local distributor or fuel injection service station.

For distributor's name or information on special governing problems, write
The PIERCE GOVERNOR Co.
INCORPORATED
1636 Ohio Avenue • Anderson, Indiana

PIERCE — TRADE MARK OF QUALITY

"SPECIFY PIERCE CENTRIFUGAL GOVERNORS ON YOUR ENGINES"

If you write maker identify as **IEN - 10250**

In recent months, Oakite chemists have developed 16 new materials for performing such metal cleaning and processing operations as:

Heavy-duty cleaning in tanks
Washing in spray machines
Electrocleaning zinc-base die castings
Etch-cleaning aluminum
Stripping paint
Drawing and forming
One-operation cleaning, pickling and conditioning for painting
Applying zinc phosphate coatings to steel in preparation for painting

FREE Tell us which jobs interest you when you write for our revised 44-page booklet *"Some good things to know about Metal Cleaning"*. Address Oakite Products, Inc., 16A Rector St., New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. and Canada

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

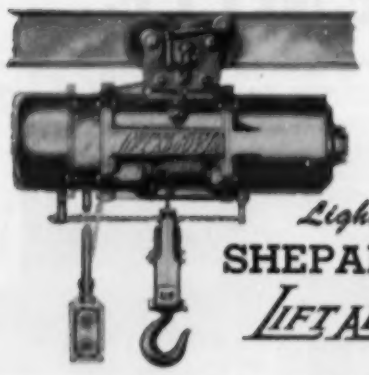
If you write maker identify as **IEN - 10251**

Choose the hoist that fits the job!

Heavy Duty
SHEPARD NILES Hoist

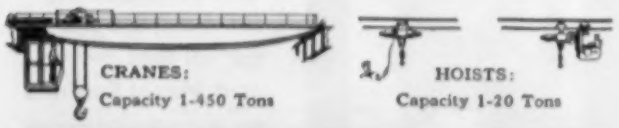
Types: Lug Suspension, Hook Suspension, Base Type, Push Trolley, Geared Trolley, Motor-driven Trolley.
Controls: Pendant Rope, Push Button, Outrig, Remote.
Speeds: To meet your requirements.
Capacities: 500 to 40,000 lbs.

● It pays to choose the right hoist for your lifting job . . . the wrong choice can be costly! Let a Shepard Niles representative guide you in selecting the hoist that best suits your needs. He's a specialist in through-the-air handling . . . knows which model, capacity and controls will be right for your use.



Light Service
SHEPARD NILES
LIFT ABOUT-JR.

Types: Lug Suspension, Hook Suspension, Push Trolley.
Controls: Single Speed, Push Button, Rope Operated.
Capacities: 250, 500, 1000, 2000 lbs.



CRANES: Capacity 1-450 Tons
HOISTS: Capacity 1-20 Tons

SHEPARD NILES
CRANE AND HOIST CORPORATION

MAIL COUPON

SHEPARD NILES Crane and Hoist Corp.
1036 Schuyler Ave., Montour Falls, N.Y.
( ) *Please send me your new Lift About-Jr. Bulletin.*
( ) *Please send me your Shepard Niles Hoist Bulletin.*
( ) *Have a Shepard Niles representative call on me.*

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____

NEW LITERATURE—*Continued*

If you write maker identify as **IEN - 0808**

DUST COLLECTING . . Uni-Wash design removes dirt, dust, lint, fumes, vapors, is especially for magnesium dust. It turns dust into wet sludge. Bulletin D-53-30, 24 pages, describes features and models. Newcomb-Detroit Co., 5741 Russell St., Dept. IEN, Detroit 11, Mich.

If you write maker identify as **IEN - 0809**

FASTENINGS . . Several types for corrugated translucent plastic sheets to secure them to metal, wood or to each other, also formed closure sealing strips. "Fastening Detail Manual," 12 pages, shows steps in use. Fabricated Products Co., Water St., Dept. IEN, West Newton, Pa.

If you write maker identify as **IEN - 0810**

FASTENINGS . . Clinch nuts secure to sheet metal to provide a good hold for load-carrying threads. Bulletin CL-154, 8 pages, tabulates clinching force recommended. Penn Engineering & Mfg. Co., Box 311, Dept. IEN, Doylestown, Pa.

If you write maker identify as **IEN - 0811**

FASTENINGS . . Countersunk lock washer has tapered twisted teeth that hold against loosening. Examples and offer of a free test sample kit in 4-page "Countersunk Lockwasher" bulletin. Shakeproof Div., Illinois Tool Works, 2501 N. Keeler Ave., Dept. IEN, Chicago 39, Ill.

If you write maker identify as **IEN - 0812**

GLASS . . Laboratory equipment including bulbs, burettes, condensers, cylinders, flasks, joints, pipettes, stopcocks, special test units. Catalog, 80 pages. Chatas Glass Co., 15 N. 3rd St., Dept. IEN, Vineland, N. J.

If you write maker identify as **IEN - 0813**

GOVERNORS . . Mechanical-type control for engine speed on equipment such as cranes, compressors, arc welders. "Engineering Data", 30 sheets, covers gear and pulley-drive models, shows performance curves. Hoof Products Co., 6543 S. Laramie Ave., Dept. IEN, Chicago 38, Ill.

If you write maker identify as **IEN - 0814**

GRINDING MACHINES . . How the Filmatic spindle bearing works is shown by transparent overlay pictures in 16-page Bulletin G-604. These pictures show the bearing under preload, then with grinding load applied, and finally with change in amount and direction of load. Cincinnati Grinders Inc., Marburg & Kline Sts., Dept. IEN, Cincinnati 9, Ohio

If you write maker identify as **IEN - 0815**

GRINDING WHEELS . . Fabric reinforcement is molded into straight and hub wheels to resist breakage in service. List prices and recommendations on use, also on reinforced mounted wheels and points, in 28-page Catalog 1748. Norton Co., 36 New Bond St., Dept. IEN, Worcester 6, Mass.

If you write maker identify as **IEN - 0816**

HANDLING . . Stiffening ribs reinforce pressed-steel truck boxes, pallets, skids, foundry flasks. Standard and special designs are shown in 20-page Form ADV-620, Republic Steel Corp., 3140 E. 45th St., Dept. IEN, Cleveland 27, Ohio

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as **IEN - 10253**

REED DU-ALL CHAIN WRENCH

Turns Any Shape . . .
Works where an ordinary wrench won't!

This new REED wrench does everything a conventional pipe wrench will do, plus a great deal more. It gets into tight corners, close to baseboards or between parallel pipe lines and holds round, square or irregular shapes firmly, without "play" and without crushing. Its fast, ratchet action lets you turn either way from either side. You can tighten and "back-off" without taking the wrench from the pipe. 14", 18" and 24" lengths.

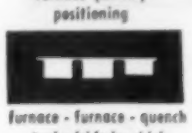
Ask your distributor or write for literature.

REED MANUFACTURING COMPANY
ERIE • PENNSYLVANIA • U. S. A.

If you write maker identify as **IEN - 10254**

Here's how you can cut costs on heat-treating small tools!

furnace - quench tanks - furnace (corner) positioning



furnace - furnace - quench tanks (side-by-side) positioning

furnace - quench tanks - furnace (side-by-side) positioning

The compactness, plus versatility of this Waltz small tool furnace enables you to have heat treating facilities right in your own shop.

This Waltz set-up includes a pre-heat furnace, a high heat furnace and quench tanks in a unit designed for convenient positioning in your shop. Furnace sections equipped with casters. Temperature range permits treatment of all high speed steels including cobalt.

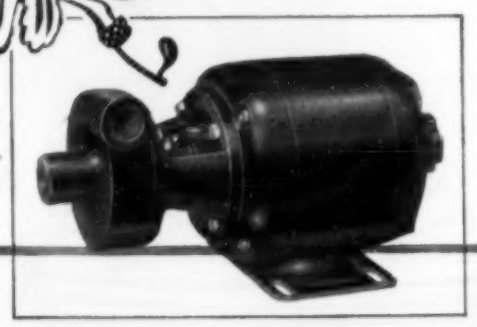
Waltz small tool furnaces are "money makers" in hundreds of shops throughout the country. Why not enjoy the lucrative advantages of heat treating facilities right in your own shop?

A complete line of Waltz standard or special heat treating furnaces, using all types of fuels, are built to suit your requirements. Write Dept. A for comprehensive bulletin.

Waltz FURNACE COMPANY
Symmes Street, Cincinnati, Ohio

If you write maker identify as **IEN - 10255**

LOW COST OPERATION



CENTRIFUGAL PUMPS

When centrifugal pumps are proportioned in size to their duties, costs are kept to a minimum. Eastern Industrial pumps do an efficient job. Weight, space, power, and costs are reduced. Heavy-duty application with trouble-free performance is yours with minimum operating costs.

Write for Eastern Centrifugal Pump Catalog 100-D

Eastern INDUSTRIES, INC.
296 Elm St., New Haven, Conn.

If you write maker identify as **IEN - 10256**

fast . . .
positive . . .
economical

DECKER

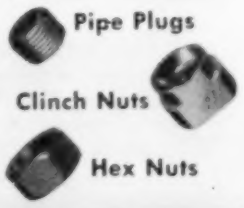
MIDLAND WELD NUTS
COLD HEAD PROCESS

Decker Weld-Nuts are manufactured to meet your demands for a better, faster, more positive method of parts assembly. Like all Decker Industrial Fasteners, Weld-Nuts are produced via the cold-head process to assure a uniform quality and exceptional economy. Decker Weld-Nuts are available in three basic types and a broad range of sizes to meet every conceivable need.

Study your production applications now and see for yourself the many operations where Weld-Nuts could save your production time and dollars.

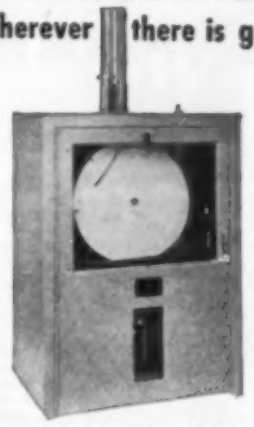
Then . . . write for sample fasteners, as well as your copy of Decker's new illustrated Industrial Fastener catalog!

OTHER DECKER INDUSTRIAL FASTENERS



DECKER MANUFACTURING CO.
ALBION MICHIGAN

If you write maker identify as IEN - 10257



ARCCO-ANUBIS 'Dry-Air GAS GRAVITOMETERS

This new Arcco-Anubis Dry Air Gas Gravitometer determines and records specific gravity of gases automatically corrected to the humidity content of the air. The difference in weight between a column of GAS and equal column of DRY AIR is measured. This ratio represents the true specific gravity of the sample.

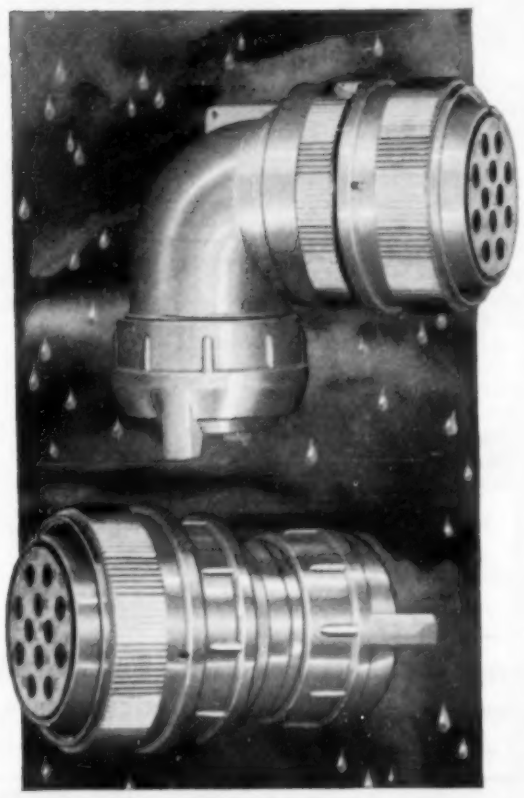
One bell of the instrument is filled with gas which is being measured, and the other bell is filled with dry air. Otherwise, except for the new instrument having one column for gas and one column for dry air, the unit is identical in operation to the standard gas gravitometer When calibrated and properly installed, these instruments require little attention other than to wind the clock, ink the pen, and change the chart. Send for bulletin No. 101.

AMERICAN RECORDING CHART CO.
3113 E. 11th St. • Los Angeles 23, Calif.

Available for Early Delivery

If you write maker identify as IEN - 10258

NOW!



BENDIX•SCINFLEX WATERPROOF PLUGS

for use with multi-conductor cables

These new Bendix*-Scinflex *waterproof* plugs are a modification of our standard AN type "E" (environment resistant) connector. They are designed to meet all "E" performance requirements when used with multi-conductor cables. Each plug includes a modified AN3057B cable clamp which provides inward radial compression on multi-conductor cables. This unique feature completely eliminates cable strain—a common source of circuit trouble.

In addition, there are gaskets at all mating surfaces and an accessory sleeve is available to accommodate an extreme range of cable sizes. A folder describing this new waterproof plug—and the various sizes in which it is manufactured—may be obtained by writing our Sales Department.

THESE BUILT-IN FEATURES ASSURE TOP PROTECTION AGAINST CIRCUIT FAILURE:

Shock and Vibration Resistant • Die Cast Aluminum Shell • Cadmium Plate—Olive Drab Finish • Moisture-Proof, Pressurized • High Arc Resistance, High Dielectric Strength Silver-Plated Contacts • Resilient Inserts

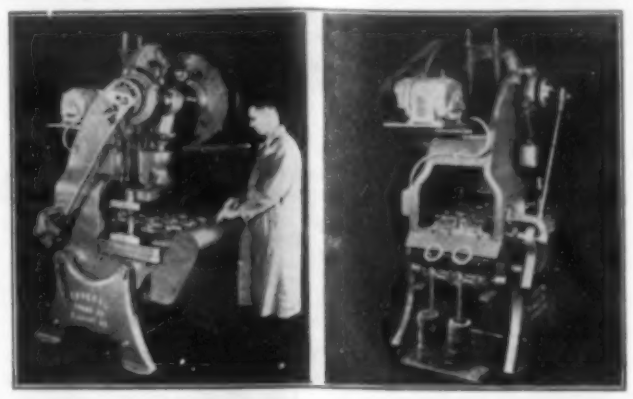
SCINTILLA DIVISION
Bendix AVIATION CORPORATION
SIDNEY, NEW YORK

Export Sales: Bendix International Division, 205 East 42nd St., New York 17, N. Y.
Factory Branch Offices: 117 E. Providencia Avenue, Burbank, California • Brouwer Building, 176 W. Wisconsin Avenue, Milwaukee, Wisconsin • Stephenson Building, 6560 Cass Avenue, Detroit 2, Michigan • 512 West Avenue, Jenkintown, Pennsylvania • 8401 Cedar Springs Rd., Dallas 19, Texas • American Building, 4 South Main Street, Dayton 2, Ohio

If you write maker identify as IEN - 10260

Press - Open back inclinable with conveyor feed for specified work

Source: FEDERAL PRESS CO.
512 Division St., Dept. IEN, Elkhart, Ind.



To order for specified use

New assembly of the Model 44 open back inclinable press, previously described IEN-8003-50, is now available with a continuous chain feed mechanism to carry work pieces into position and to remove them from the press. The operator works at a safe distance, about 2 ft. from the ram. Finished pieces are ejected from the conveyor at the rear of the assembly. Production for the unit illustrated is 120 pieces per minute.

The press stroke is standard at 6 in. but can be specified for any amount between 1 and 12 inches. Frame extension, for added die space or shut height, can be provided from 1 to 10 in. over the standard initial 10 inches. Throat depth is 11½ inches. The assembly includes Timken bearings, solid web type flywheel, symmetrical ram.

If you write maker identify as IEN - 10261

Threading - Pipe machine to drive hand tools, ⅛ to 8 inches

Source: OSTER MFG. COMPANY
2057 E. 61st Place, Dept. IEN, Cleveland 3, Ohio

Welded steel housing

Lightweight Champ No. 432 is a new portable motor driven machine to operate hand pipe tools. It has capacity for direct operation in thread cutting from ⅛ to 2-in. pipe. This capacity can be extened to 8-in. pipe when the unit is connected to a geared drive shaft. In addition to driving threading tools, pipe cutters and reamers, the machine can be used to turn up or back off pipe fittings. It can be furnished with an attachment for bar twisting. Construction employs two driving arms, on center with the spindle, and a wrenchless front chuck that drives in both right and left hand directions.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10262

If you write maker identify as IEN - 10263

If you write maker identify as IEN - 10264

The NEW M·S·A FACEGARD

. . . gives workers the comfort they want —the protection they need

Workers everywhere are giving the new M.S.A. Facegard their vote for the best in comfort and protection against flying objects, abrasives, dusts, chemical splash. And there are good reasons why . . .

. . . Wide-open spaces between face and visor eliminate the annoying, time-consuming practice of coming up for air. . . . The attractive green half-cap, fiber glass reinforced, is unusually light . . . A foam rubber sweatband cushions headgear against worker's head for comfort . . . Elastic headband, adjustable to all sizes, frees wearer of pressure-points . . . All visors are 12 inches wide with a choice of length, thickness, clear or medium green shade . . . Permits wearing of the popular Dustfoe #55 Respirator when needed. *Write for details today.*

MSA SAFETY EQUIPMENT HEADQUARTERS

MINE SAFETY APPLIANCES CO.
201 North Braddock Avenue
Pittsburgh 8, Pa.
76 Branch Offices in the United States

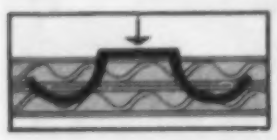
If you write maker identify as IEN - 10265

Write for Details Now!
PERMAMIX CORPORATION
230 N. LaSalle Street • Chicago 1, Illinois

If you write maker identify as IEN - 10266

LOOK! A SELF-CLINCHER!

No blade to insert!
Staple spreads itself under or inside the work!



Bostitch T5 Tacker → with outward clinch

Use it for stapling insulation around pipes and ducts ... fastening shipping tags to corrugated containers ... any job that calls for a blind clinch. By lightly pressing the handle you automatically drive a staple and turn its legs outward to clinch under or inside the work. Two models for light and medium staples. Call the Bostitch economy man in your area.

Fasten it better and faster with

For more information about the Bostitch T5 Tacker with outward clinch, write BOSTITCH, 649 Mechanic St., Westerly, R. I.

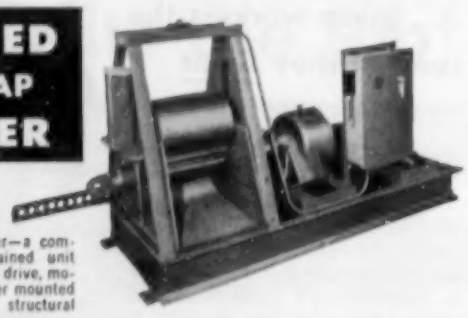
BOSTITCH
STAPLERS AND STAPLES

If you write maker identify as IEN - 10267

MAKES BALES

of strip shearings — stringy scrap

ALLIED SCRAP BALER



The Allied Baler—a complete, self-contained unit including geared drive, motor and controller mounted on a portable, structural steel base.

Lead-in piece is hooked to winding spindle. Tangled mass is dragged in.

Bale partly formed. Compacting roller and contour of baling box form dense uniform bales.

Full bale completed; 19" dia., 19" lg., approx. 400 lbs. ready for sale.

Write for further information.

Allied Steel and Conveyors, Inc.
17311 Healy Ave. • Detroit 12, Mich.

If you write maker identify as IEN - 10268

Save on labelling...on package costs...on storage space

PRINT YOUR "LABEL" RIGHT ON THE PACKAGE

with a MARKOPRINTER production-line imprinting machine

Are you using fully preprinted packages for each different product in your line? Are you using labels on a common package? Either way the Gottscho MARKOPRINTER may save you thousands of dollars. The MARKOPRINTER synchronizes with present packaging-line operation . . . automatically prints names, numbers, code-dates, even complete display copy on one or more blank panels of shelf cartons, boxes, canisters, cans, shipping cases and crates. Features quick copy changeover, adjustability for different package sizes.

For complete details . . . write-wire-phone . . . today

Gottscho — ADOLPH GOTTSCHO, INC. — Hillside 5, N. J. — 50 Years of Leadership

In Canada: RICHARDSON AGENCIES, LTD., Toronto and Montreal

NEW LITERATURE —Continued

If you write maker identify as IEN - 0817

HARD FACING . . Application procedures in 72-page pocket "Weldor's Guide" on electrodes and rods for hard facing, recommendation tables. Mir-O-Col Alloy Co., 312 N. Avenue 21, Dept. IEN, Los Angeles 31, Calif.

If you write maker identify as IEN - 0818

HEAT TREATING . . Induction hardening and heat-treating applications from small set screws to locomotive-engine crankshafts. Catalog 22-B, 12 pages. Ohio Crankshaft Co., Tocco Div., 3800 Harvard Ave., Dept. IEN, Cleveland 1, Ohio

If you write maker identify as IEN - 0819

SPACE HEATING . . Selectotherm is vacuum steam heating control equipment that balances heat supply against heat loss. Bulletin 110, 20 pages, tells how. Illinois Engineering Co., 2035 S. Racine Ave., Dept. IEN, Chicago 8, Ill.

If you write maker identify as IEN - 0820

SPACE HEATING . . How and where to use gas-fired unit heaters is described in pocket Bulletin SA-541-A, 20 pages. It tells how to appraise a job, estimate heat loss, selecting a heater, points to remember about coverage, location, controls. Reznor Mfg. Co., 300 James St., Dept. IEN, Mercer, Pa.

If you write maker identify as IEN - 0821

HONING . . Forty-two application examples of parts honed on the company's machines include production figures. Bulletin X-SP-5056A, 12 pages. Sunnen Products Co., 7910 Manchester Ave., Dept. IEN, St. Louis 17, Mo.

If you write maker identify as IEN - 0822

HOSE FITTINGS . . Two-piece reusable hydraulic hose couplings and other fittings. Makeup and installation instructions are in 4-page Bulletin 105. Eastman Mfg. Co., 1002 N. 11th St., Dept. IEN, Manitowoc, Wis.

If you write maker identify as IEN - 0823

THERMAL INSULATING . . Super-Fine Fiber-Glass insulation is for heat, cold and sound. Bulletin FSF-14, 4 pages, tells about available facings of foil, paper, plastic, rubber and about methods of application. Libbey-Owens-Ford Glass Co., 1047 Nicholas Bldg., Dept., IEN, Toledo 3, Ohio

If you write maker identify as IEN - 0824

LADDERS . . Aluminum ladders in straight, extension, step, platform, sectional designs, also trestles, scaffold planks, stages. Catalog 54, 20 pages. Louisville Ladder Co., 1101 W. Oak St., Dept. IEN, Louisville 10, Ky.

If you write maker identify as IEN - 0825

LATHE TOOL . . Holder for drills, counterbores, reamers grips by means of adjustable V-jaws to accomodate a range of diameters from 1/64 to 1 inch. "Tool Holders," 4 pages. Brookfield Inc., 240 Cushing St., Dept. IEN, Stoughton, Mass.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10269

SPEED UP
SLOW-FLOW MATERIALS

TARS
PLASTICIZERS
WAXES
MOLASSES
GLUES
RESINS
GREASES
GUMS . . ETC.

ACRAWATT ELECTRIC
DRUM HEATERS
FIT ALL STANDARD 22¼" DRUMS

- Proven, Acrawatt TWINSTRIP Construction.
- 3 Heats: 3000 Watts 230 Volts.
- Fast Heat Transfer.
- Aluminized Steel Encased.
- Enclosed Wiring Terminals.
- Low Radiant Loss.
- Fully Insulated.
- Easy to Install and Remove.

Kill time-consuming, costly slow-flow of viscous materials. Slip one or more Acrawatt Drum Heaters on your drums. Make cloggy, sluggish contents get a move on. Go on and off in a jiffy. Safe and simple to apply and operate. Use singly or in multiple. Save with Acrawatt reliability, long life ruggedness and efficiency. Order today.

ORDER NOW
EA. $19.50 F.O.B. CHICAGO
Spot Shipment
Shipping Wgt. 10 Lbs.

FOR BETTER ELECTRIC HEATERS AT BETTER PRICES, LET US QUOTE

ACRA ELECTRIC CORPORATION
9905 PACIFIC AVENUE • FRANKLIN PARK, ILLINOIS

If you write maker identify as IEN - 10270

Sure! Turner can furnish ordinary 3 or 4 speed transmissions — BUT . . . Turner can ALSO furnish 6 or 9 speeds for AS LITTLE AS $10 to $20 ADDITIONAL . . .

Now, for slight added cost you can have 6 or 9 speeds at the "twist of a wrist." Models range from fractional to 60 H.P. Wide range of applications on machine tools as well as other equipment. Write for specification and descriptive catalog.

See your dealer or write for further details

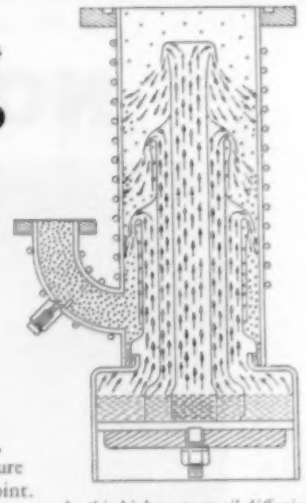
TURNER 3R3 UNI-REDUCER
New simplified speed reducer mounts on motor shaft with a torque arm to frame or base. Fits standard motors 1 to 5 H. P., 1800 RPM; 1 at 3 H.P. 1200 RPM. Reduction ratio 3.04 to 1. Write for information.

TURNER UNI-DRIVE Company
3479 Terrace Street Kansas City 8, Missouri

If you write maker identify as IEN - 10271

How to select the right

vapor pump fluid



In this high vacuum oil diffusion pump, hot vapor rises from a boiler through concentric chimneys from which it is projected through nozzles at supersonic speeds. The streams of vapor trap the gas molecules from the chamber being evacuated and propel them forward in the direction in which a forepump is drawing gas. The vapor then condenses on the cooled wall of the pump and returns to the boiler to repeat the cycle.

CVC's development of special organic liquids for *high vacuum* diffusion and oil ejector pumps contributes in a major way to the economical creation of high vacuum *without liquid gas or charcoal traps.*

The nine *CVC* pump fluids are the result of long experience in balancing the factors of vapor pressure-temperature characteristics, chemical and thermal stability, nature of breakdown products, and pour point.

We have prepared a new "Data Sheet" describing these vapor pump fluids in detail. You will find it an aid to selecting the right fluid for your high vacuum application. We will be glad to send you a copy promptly.

CVC

Consolidated Vacuum Corporation
Headquarters for High Vacuum —— ROCHESTER 3, N. Y.
sales offices: New York, N. Y. • Chicago, Ill. • Boston, Mass. • San Francisco, Calif. • Camden, N. J.

If you write maker identify as IEN - 10272

AUTOMATIC DOORS
Packaged—Ready to Install

Open in 3 seconds
•
Expedite plant traffic
•
Improve temperature and humidity control
•
Earn their cost in 1 month

PREST-O-MATIC DOORS open automatically in as little as 3 seconds. Complete safety. Fork lift truck driver pulls cord*, door opens, he drives through without slowing down, again pulls cord, door closes. Prevents drafts. Improves critical temperature and humidity control. Completely packaged—quickly and easily installed. Pays for itself quickly. Send for new booklet.

**Other type controls available.*

CLARK DOOR COMPANY, Inc.
519 Hunterdon St., Newark 8, N. J.

If you write maker identify as IEN - 10273

How can this UNIQUE MATERIAL *help you?*

Here's a material that is heat resistant, heat absorbing or heat insulating; electrically conductive or nonconductive; patterned or plain; flat or curved; translucent, transparent or opaque.

The material: The many kinds of glass made by Libbey·Owens·Ford—one of which can probably help you improve a product or a production process.

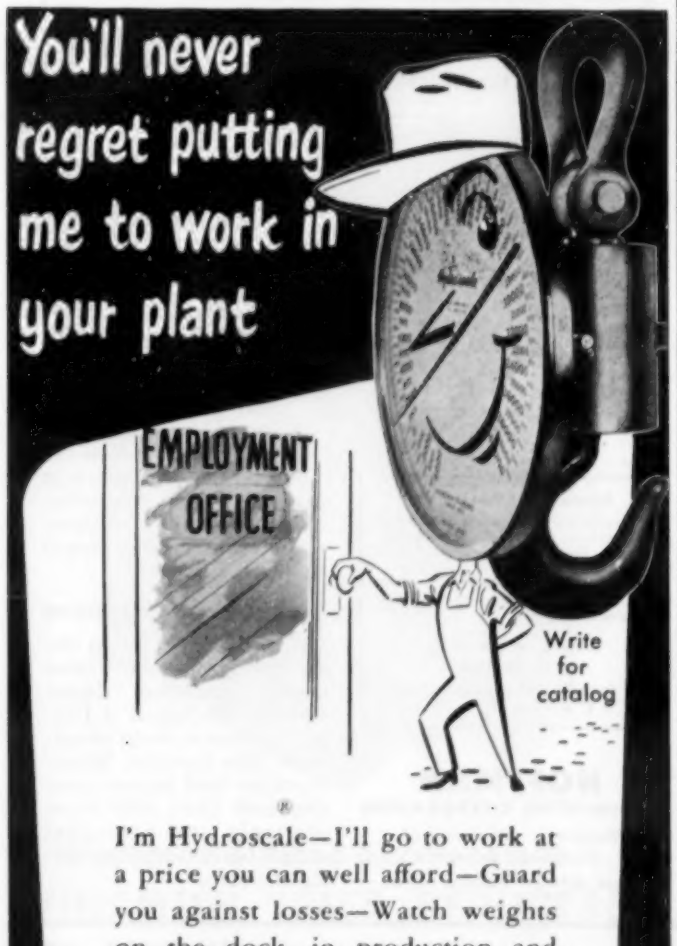
Write today for your free edition of *Glass for Product and Engineering Design.*

Ask for SPD-54, Dept. 9294, Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

LOF GLASS · Corrugated · FIBER-GLASS

LIBBEY·OWENS·FORD
a Great Name in **GLASS**

If you write maker identify as IEN - 10274



I'm Hydroscale—I'll go to work at a price you can well afford—Guard you against losses—Watch weights on the dock, in production and processing—Help you make money as well as save it! My buddies are on the job from coast to coast eliminating the expense and inconvenience of ordinary weighing stations, making weighing practical and convenient—a part of your handling operation.

HYDROSCALE

Over 60 standard models
500 to 200,000 lbs.
Pound-Kilogram models,
Batching models, etc.

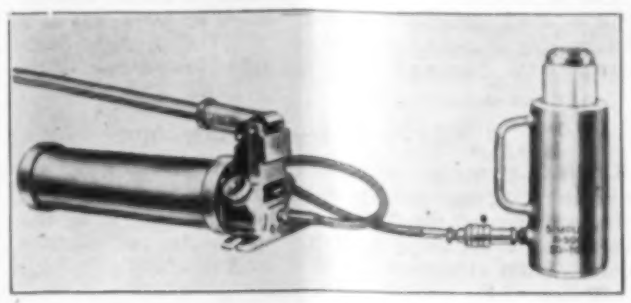
HYDROWAY SCALES, INC.
20624 WEST 8 MILE ROAD · P.O. Box 4754 · DETROIT 19, MICH.

TRADE MARK REGISTERED U. S. PAT. OFF.

If you write maker identify as IEN - 10276

Jack - Hand hydraulic pump rates 50 ton, provides 5½ in. lift

Source: TEMPLETON KENLY & CO.
2523 Gardner Road, Dept. IEN, Broadview, Ill.



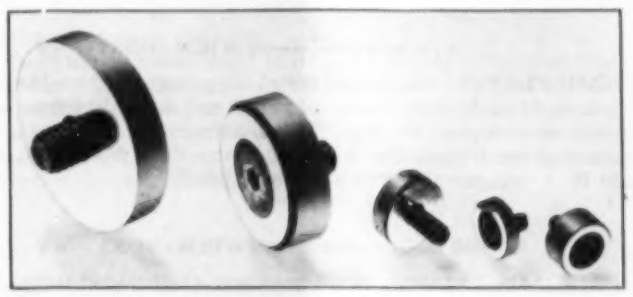
New Simplex assembly

Overall height, in lowered position, is 10½ in. in this new 50-ton jack. The assembly consists of the hydraulic ram, a high pressure connecting hose and a lever operated pump. The jack can be applied in confined locations, under loads with small clearance, and in places where remote operation is desirable. The pump can be set for high speed at low pressure to rapidly position the ram prior to its taking over load. Then it can be set for low speed and high pressure to lift the load. A safety valve prevents overloading.

If you write maker identify as IEN - 10277

Machine Parts - Flat steel feet for application on jigs and fixtures

Source: JERGENS TOOL SPECIALTY CO.
712 E. 163rd St., Dept. IEN, Cleveland 10, Ohio



For clearance and handling

Six sizes range from ½ to 1⅝ in. in diameter and from ⅛ to ⅜ in. in thickness in this new line of carburized and hardened feet. The new units can be used for cutter setting blocks on milling fixtures. They are supplied complete with flat socket head screws.

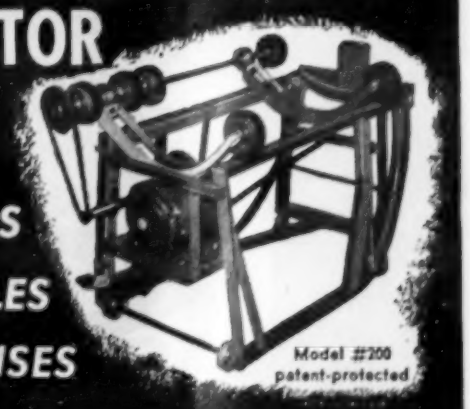
If you write maker identify as IEN - 10278

Upset pins with nail-like heads on one or both ends and at specified positions, singly or in multiple along a metal shank, are available on new automatic equipment installed by Art Wire and Stamping Co., 227 High St., Dept. IEN, Newark 2, N. J. The pins can be made from wire measuring 0.01 to 0.09 in. in diameter. In most cases the outside diameter of the head or flange can be double the wire diameter or less. Thickness ranges from 0.01 on fine wire to 0.062 on the heavy wire. The company will send you a literature page on request.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10279

inexpensive MORSE portable ROTATOR

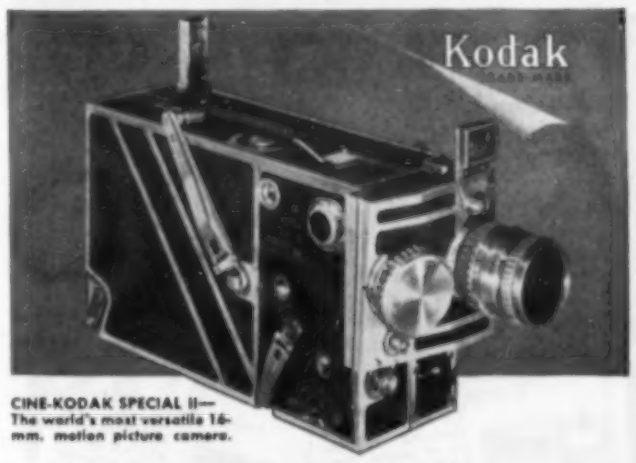


- *MIXES*
- *BLENDS*
- *TUMBLES*
- *CLEANSES*

In 30 to 55 gal. drums, 1 to 5 gal. cans at rotating speeds 10 to 40 rpm. The four drive-wheels have Neoprene treads, resistant to paint and oil. The idler wheels have Torrington Needle Bearings for smoother operation. Easily loaded—frame has retractable casters. Various speeds are secured through chain sprocket reduction. Morse Model #200 Rotator weighs 115 lb. Write for Bulletin 348 and free folder showing complete Morse line or Drum and Barrel Handling Equipment.

MORSE *MANUFACTURING CO.* **INC.**
755 West Manlius St. East Syracuse, N. Y.

If you write maker identify as IEN - 10280



CINE-KODAK SPECIAL II—
The world's most versatile 16-mm. motion picture camera.

Make movies that work for you!

In almost every industrial activity—engineering, manufacturing, employee training, research, safety and methods evaluation—in-plant movies are the fastest, easiest, and most effective method for putting across your story.

And for on-the-job movie making, many leading industrial companies have chosen the Cine-Kodak Special II Camera. It has the versatility to handle almost any type of job. Yet its simplicity of operation enables you to get high-caliber results almost as easily as taking home movies.

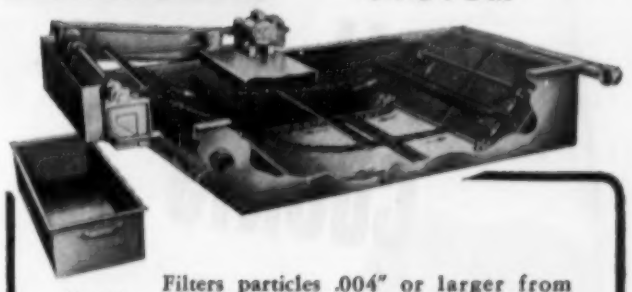
WRITE FOR FREE BOOKLET, V1-3, describing the Cine-Kodak Special II.

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

If you write maker identify as IEN - 10281

New! *Filters Small Solids...*

Delpark Settling and Filter SYSTEM



Filters particles .004" or larger from liquids of varying viscosity containing solids of different particle sizes and weights.

Power-driven expeller flights, solid and of special bristle brushes, sweep solids from the screen and settling area up a ramp at the opposite end. A special cleaning device removes the solids from the flights before their return to the filter. Screens easily removed for manual cleaning. A blank metal sheet replaces the screen during cleaning.

WRITE FOR NEW BULLETIN

INDUSTRIAL FILTRATION COMPANY
95 INDUSTRIAL AVE. LEBANON, INDIANA

If you write maker identify as IEN - 10282

"Saved Cost of New Warehouse" says PALTIER USER

Paltier STORAGE SYSTEM

increases storage space up to **75%** and more — decreases man handling as much as **75%**

ASK US: PALTIER studies your storage problem—engineers and designs a system for your specific needs.

Many PALTIER installations pay for themselves "right from the start."

This booklet tells the PALTIER story, ask for it today.

THE PALTIER CORP.
1711 Kentucky St., Michigan City, Ind.

If you write maker identify as IEN - 10283

WORK MATES TO MORE EFFICIENT PRECISION CRAFTSMANSHIP

CHALLENGE®
SURFACE PLATE EQUIPMENT
• HIGH GRADE SEMI-STEEL
• HEAT TREATED • PRECISION GROUND

STRAIGHT EDGES—For scraping planer and lathe bed ways . . . parallel straight edges for inspection of alignment and bearing surfaces of machine tools.

UNIVERSAL BOX ANGLES Combines the clamping facilities of an angle iron, the stable accuracy of a box parallel with the perpendicular flat surface of an angle plate.

ANGLE PLATES—Made in 22 sizes from 2¾ x 4¾ x 4¾ up to 24 x 24 x 24 for clamping and holding work.

V-BLOCKS—Feature ribbed sides, light weight and a V accuracy of .0005 inch . . . for supporting shafts for drilling, checking, etc.

BOX PARALLELS Complete range of sizes for every use . . . Accurate to .0005 inch.

THE CHALLENGE MACHINERY CO.
Office, Factories and Show Room: Grand Haven, Mich.
Challenge TRADE-MARK ®
Over 50 Years in Service of the Graphic Arts
DEALERS IN ALL PRINCIPAL CITIES

If you write maker identify as IEN - 10284

BEST ON ALL COUNTS

Capacity 2,000 lbs.

RAYMOND Lightweight
Hydraulic HAND PALLET TRUCK

- **LIGHTEST WEIGHT** Aluminum alloys reduce weight without sacrificing quality or strength.
- **STRONGEST FORKS** One-piece welded steel construction insures the maximum in overload safety factor.
- **EASIEST TO OPERATE** Foot pedals lift, lower loads. Easy to pull. Effortless pallet entry. (Patented booster roll construction.)
- **LONGEST SERVICE** Proven under years of use—and abuse. Lowest cost in the long run.
- **MOST EFFICIENT PUMP** Backed by over 25 years experience in manufacturing hydraulic material handling equipment.
- **RUGGED CONSTRUCTION** Ram pistons, axles, lever shafts are heat-treated alloy steel. Reinforced handle.

Mail Coupon!

The RAYMOND CORPORATION
3543 Madison St., Greene, N.Y
Give me the facts on your Lightweight Hand Pallet Truck . . . send latest bulletin!
NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____

NEW LITERATURE—Continued

If you write maker identify as IEN - 0826

LATHE TOOLS . . Work driver mounts on a lathe spindle, grips or disengages work between centers by jaws held in a floating ring. Sizes to 8 inches. Bulletin WD-67, 8 pages. Skinner Chuck Co., Edgewood Ave., Dept. IEN, New Britain, Conn.

If you write maker identify as IEN - 0827

LATHES . . Automatic machines for production work are presented in 32-page "Engineered Production" bulletin along with examples of small-lot, long-run, special turning, and suggestions on setting of multiple tools. Sundstrand Machine Tool Co., 2531 11th St., Dept. IEN, Rockford, Ill.

If you write maker identify as IEN - 0828

LUBRICATING . . Oil is metered by automatic centralized equipment to individual bearings on a machine. How this is done for textile machines is subject of 16-page booklet, "From Fibre to Fabric". Bijur Lubricating Corp., 151 W. Passaic St., Dept. IEN, Rochelle Park, N. J.

If you write maker identify as IEN - 0829

LUBRICATING . . Specialized lubricants to resist action of acids, alkalis, water, solvents, steam, gases. Bulletin BK-20, 8 pages, has a selection chart. Keystone Lubricating Co., 21st & Clearfield Sts. Dept. IEN, Philadelphia 32, Pa.

If you write maker identify as IEN - 0830

MELTING . . Cupolas in 15 standard sizes have iron melting capacity of 1 to 33¼ ton per hour. Bulletin FY-172, 24 pages, goes into design points and selection data. Whiting Corp., 15629 S. Lathrop Ave., Dept. IEN, Harvey, Ill.

If you write maker identify as IEN - 0831

NAMEPLATES . . Decorated metal stampings combine the functions of nameplates or control panels and decorative trim. Examples in 4-page bulletin, "Trims, Panels, Escutcheons", emphasize use of stock dies. American Name Plate & Mfg. Co., 4254 W. Arthington, Dept. IEN, Chicago 24, Ill.

If you write maker identify as IEN - 0832

PACKINGS . . Lattice Braid packings are braided internally as well as externally so each strand passes through the packaging body at a 45-deg. diagonal. Advantages, materials, sizes in 8-page Bulletin A-131. Garlock Packing Co., 250 Main St., Dept. IEN, Palmyra, N. Y.

If you write maker identify as IEN - 0833

PACKINGS . . Leather "V", cup and "U" packings, wax or rubber impregnated, for oil, air, water or gas pressure service. Three bulletins, 2-575, 2-577, 2-578, on Vim packings, 4 pages each. E. F. Houghton & Co., 303 W. Lehigh Ave., Dept. IEN, Philadelphia 33, Pa.

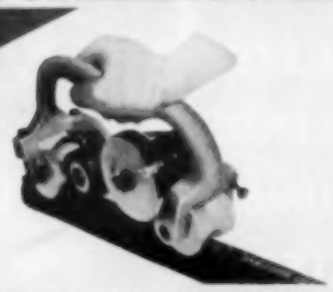
If you write maker identify as IEN - 0834

PIPE FITTINGS . . "Ring-Tite" coupling joins Transite asbestos-cement pipe for heads to 346 ft., slides into place, seals by means of rubber rings. Bulletin TR-142A, 6 pages. Johns-Manville, 22 E. 40th St., Dept. IEN, New York 16, N. Y.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10286

INTERCHANGEABLE
low cost
MARKING
MATTHEWS PORTABLE PRINTER



Reduce marking costs. Use this portable unit to print flat sheets, curved plates, hose, tubes, even-sided bars, etc.

Matthews #230 Portable Printer weighs less than 8 lbs., holds 4 sizes of interchangeable rubber type, stores enough ink for hours of printing without refilling.

Write today for literature

JAS. H. MATTHEWS & CO.
3948 FORBES ST. PITTSBURGH 13, PA.
BOSTON • CHICAGO • PHILADELPHIA • CLIFTON, N. J.

If you write maker identify as IEN - 10287

GEARS
of every description—
made to your specifications

The gears you buy from E. B. Sewall are made by men who are fussy about specifications. They've got the finest equipment and know how to use it. If you specify .0002" tolerance, you get it—at each tooth on every gear we ship. We're in a brand new plant, equipped to handle your gear requirements. Send specifications and quantity for our quotation.

Your inquiry will be answered promptly

SEWALL

E. B. Sewall Mfg. Co., 696 Glendale St., St. Paul 14, Minn.

If you write maker identify as IEN - 10288

J. I. C. WIRING BOXES
of Sensationally New Design

Beautifully finished in gray baked enamel

Removable Panel Plate simplifies mounting terminal strips or other electrical equipment, and eliminates bolt holes through bottom of box. Ford, General Motors and Chrysler are some of the users of these junction boxes.

Write for literature or memo sample.

Standard sizes range from 4" x 4" x 3" to 16" x 14" x 6".

Splash-proof and Dust-proof

Water, oil or dust cannot enter these rugged steel wiring boxes. THEY COMPLY WITH J. I. C. ELECTRICAL SPECIFICATIONS FOR JUNCTION BOXES. No screw holes in cover and no knock-outs to admit liquids. Cover can be removed by loosening one exterior screw. Neoprene rubber gasket provides tight seal. Note external mounting feet.

Ideal for Machine Tool Wiring

Oil, chips or water in the control circuit can cause costly machine "down time". Hoffman J.I.C. wiring boxes help eliminate this trouble. Many machine tool buyers now demand that electrical controls and terminal strips be enclosed in oil-tight boxes.

HOFFMAN
ENGINEERING CORPORATION
Designers—Fabricators of Sheet Metal Enclosures
Dept. IEN-21 Anoka, Minn.

If you write maker identify as IEN - 10289

THE MATEER ELECTRIC FILLER HANDLES THEM ALL!

LIQUIDS • OILS • POWDERS • PASTES

COMBINED LIQUIDS AND SOLIDS
1/500 oz. to 2 pounds
20 to 70 Per Minute
Up to 750° F.

SAVE TIME AND MONEY WITH THE MATEER ALL ELECTRIC FILLING HEAD

Totally enclosed, manual or automatic. Accuracy as close as ±½%. Synchronize this self contained filling head with existing production lines and processing systems.

Jacketed and electrically heated hoppers available for handling cold or hot materials up to 750° F.

Hot waxes, insulating compounds and asphalts handled without difficulty.

Send full information and samples of material to be tested. Write Dept. 106 for fully illustrated bulletin.

G. DIEHL MATEER & CO.
Lincoln Highway • Devon, Pa.

If you write maker identify as IEN-10290

Are You Saving All You Can with Liquid Meters?

HERE'S A QUICK CHECK LIST

of savings made every day with meters for more than 150 industrial liquids. Ideas for you!

AUTOMATIC BATCH MIXING: Measure liquid ingredients with **Auto-Stops.** No slow weigh tanks, bags, buckets. Push buttons to set . . . meter shuts off automatically, accurately.

ELIMINATE REJECTED BATCHES: In pharmaceutical plant, Neptune meters stopped errors, saved costly ingredients, paid for themselves in one month!

AUTOMATIC PROCESS CYCLING: Auto-Stop meter with electrical switch actuates pumps, agitators, valves, etc. Saves time, labor, power.

EASIER INVENTORY: Neptune meters keep track of inventory, consumption, production rates. They put a stop to waste, verify full measure received or delivered.

AUTOMATIC DRUM FILLING: You can buy a meter that speeds filling of drums, radiators, tanks, etc. Repeats exact quantity every time. Saves time, prevents spills or "shorts."

OIL BURNERS & DIESELS: Low flow Neptune meter registers daily fuel consumption of oil burners or diesels. Eliminates bulky day-tanks.

WATER CONDITIONERS: When water conditioner needs recycling, Trident meter does it automatically. Yours may have one . . . look and see.

TANK TRUCK DELIVERIES: Many industrial liquids can be delivered by metered tank trucks with greater ease and accuracy than truck markers, gauges or sticks.

Ask for free metering data book 566RI

NEPTUNE METER COMPANY *Branches in* **19 W. 50th ST., NEW YORK 20** *Principal Cities*

If you write maker identify as IEN-10291

Shaving newspaper plates . . . quickly, accurately

Hammond Plate Shavers use WINSMITH SPEED REDUCERS

Shaving 19" x 26" newspaper plates to correct printing height within 12 seconds . . . shaving 30 to 40 thumb nail shell plates at one time with uniform accuracy, this Hammond Model S-8 Plate Shaver is equipped to help a newspaper go to press before deadline.

Directly coupled to a 1½ HP motor in the drive mechanism, which moves the plates into the carbide blade, is a Winsmith Model 11H Differential Speed Reducer with a reduction ratio of 108:1. Correct speed for fast, smooth and accurate shaving is assured.

Compactness, ruggedness and dependability have made Winsmith reducers most preferred for applications within the 1/100 to 85 HP range, in ratios of 1.1:1 to 50,000:1. Why not find out how this complete line of differential, worm gear, helical gear and worm-helical reducers can meet your needs to best advantage?

For details, request Catalog 148 . . . and for information on Winsmith's new "C" Line Worm Gear Speed Reducers, request Bulletin HW654.

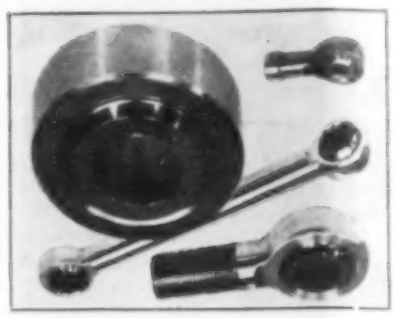
WINSMITH, INC.
10 DAVIS ST.
SPRINGVILLE (Erie County), N. Y.

WINSMITH SPEED REDUCERS

If you write maker identify as IEN-10293

Bearing - Spherical design available to order for specified use

Source: DELRON COMPANY
5224 Southern Ave., Dept. IEN, South Gate, Calif.



Specifications on request

Sizes range up to No. 16 for this new spherical bearing in which assembly between ball and race does not require the usual swaging operation. The bearing can be made in a variety of materials. It is particularly suited for heavy load applications such as mounting jet engines in aircraft.

If you write maker identify as IEN-10294

Drive - Speed reducer mounts helical gears in sealed housing

Source: STERLING ELECTRIC MOTORS INC.
5401 Telegraph Rd., Dept. IEN, Los Angeles 22, Calif.

Bulletin 186 upon request

The company announces availability of its Multi-Mount speed reducer that has previously formed a part in its line of Slo-Speed geared electric power drives. Double and triple reduction assemblies are available in a variety of mounting types, with feet or footless, with face or flange mounting and in a range of ratings and speeds. Off-set shafts provide for compact design. The drive shaft is located close to the mounting feet with widely spaced bearings to minimize torsional stress on the base.

Neoprene oil seals retain lubricant and keep dirt out of the housing. A labyrinth seal, on the input shaft, and concentric projecting rings on the face of the seal provide a labyrinth through which dust, dirt or liquid cannot pass or enter the bearing. The gears run in a bath of oil. Rigid housing construction keeps gears and bearings in alignment.

If you write maker identify as IEN-10295

Fastening - Wing nut made of die cast zinc, serrated base

Source: GRIES REPRODUCER CORP.
400 Beechwood Ave., Dept. IEN, New Rochelle, N. Y.

Available from stock

Self-locking action is provided by the serrated base of this new nut. It is made of corrosion proof zinc alloy and is fitted with a patented recessed thumb grip. It is available in plain bright finish and in other commercial finishes.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10296

Reach hard-to-get-at screws with

"YANKEE"

OFFSET RATCHET SCREWDRIVER

No. 3400

Fits in vest pocket—yet has the power of a full 8-inch screwdriver. Needs only an inch or so of clearance. Two sizes to drive slotted head screws. Wherever good tools are sold—or write for full particulars. "Yankee" Tools, 204 West Lehigh Avenue, Philadelphia 33, Pa.

No. 3600-9

HANDY PLASTIC KIT

for mechanics who need ratchet screwdriver to fit hollow head screws. Features No. 3600 handle with 8 hex key adapters ranging from 5/64" to 5/16".

STANLEY **"YANKEE" TOOLS**
A Division of The Stanley Works

If you write maker identify as IEN-10297

At left: Jacketed 3-Way Plug Cock.

Below: Cutaway section of Jacketed Cock, showing packing gland construction.

H&B ESTABLISHED 1897

Jacketed Pipe, Pumps, Valves and Fittings . . .

Regardless of whether the material is being heated or cooled in the processing, and what heating or cooling medium is being used, H & B jacketed fittings are available for all applications. Steam, hot water or hot oil may be used for heating, cold water or brine for cooling.

H & B can save you money on your jacketed pipe and fitting requirements because we buy all standard size pipe from the mill in carload lots, make our own special flanges in quantities, and are tooled up for making jacketed equipment at lowest possible price. Write for Bulletin J-50.

Hetherington & Berner Inc.
725 Kentucky Avenue • Indianapolis 7, Indiana

If you write maker identify as IEN-10298

Fans . . Blowers FOR ALL INDUSTRY

"Standard Units or Custom Design"

DOUBLE SWIVEL AEROSPOT

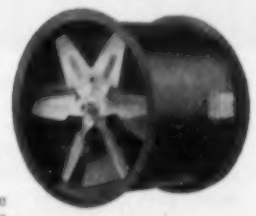
Fans and blowers in a wide range of standard size units are available for specific air moving and ventilating requirements. Special custom designed equipment can also be furnished. Our staff of engineers is at your disposal for competent advice on any ventilating problem. Correspondence invited, without obligation.

SEND FOR CATALOG TODAY!

For column or wall mounting. Saves valuable floor space. Direction of blast adjustable: 360° around Spindle Axis, 90° around Motor Support Axis. Sizes, 20" to 36".

6 Blade DYNAFLOW Unit

Also available in two and four blade types. Sizes, 16" to 30".



DUCTYPE BLOWER

Direct driven, single or tandem fan units. Also available with belt drive. Sizes, 16" to 36".

SOUTH BEND AIR PRODUCTS, Inc. 322 E. COLFAX AVE. SOUTH BEND, IND.

If you write maker identify as IEN-10299

IT COSTS LESS TO USE THE BEST!

PLS

1. Takes less PLS to give a perfect seal.
2. One compound for many services: water . . . oil . . . gas . . . steam . . . chemicals . . . petroleum products—low and high pressures.
3. Never washes out—one application lasts forever.
4. Never hardens: joints may be easily broken after years of service—no damaged connections.

For your convenience: available in handy 1-lb. brush top cans.

Prove it to yourself. Send for a free sample. Crane Packing Company, 1815 Cuyler Avenue, Chicago 13, Ill.

JOHN CRANE **CRANE PACKING COMPANY**

IN CANADA: Crane Packing Co., Ltd., 617 Parksdale Ave., N., Hamilton, Ont.

If you write maker identify as IEN - 10300

REALOCK FENCE

keeps your guard up

With a Realock Fence enclosing your buildings and grounds, your guard is always up against the risks of unauthorized entry.

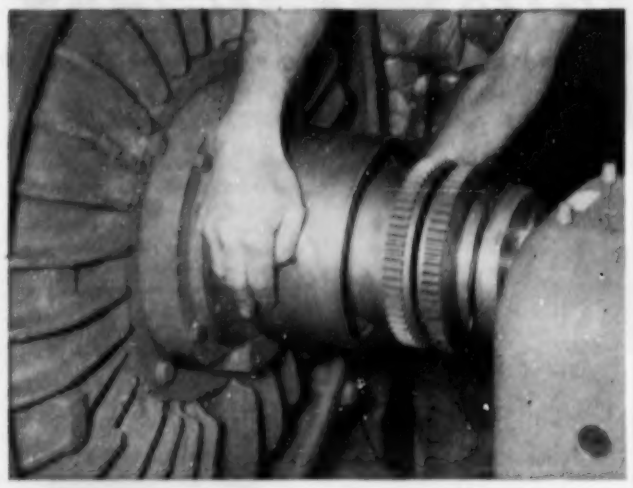
Consult your classified telephone directory for nearest sales office or write to any of our three division offices for free estimate or catalog.

BRANCHES IN ALL KEY CITIES
THE COLORADO FUEL AND IRON CORPORATION • Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION • Buffalo, New York

REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
CF&I

If you write maker identify as IEN - 10301

UNCOUPLED - *in seconds!*



Slash down-time . . . assembly, operating, maintenance costs. Simplified 7-part flexible gear couplings have no nuts, bolts, flanges—are assembled, uncoupled in seconds without special tools. You install, move, align, clean, maintain equipment in a *fraction* of the time. Largest bore, HP and RPM capacity . . . you buy smaller, less expensive couplings that cut costs, increase life of equipment. See your Sier-Bath Coupling Distributor . . . send for 16-page CATALOG. *Sier-Bath Gear & Pump Co., Inc., 9246 Hudson Blvd., North Bergen, N. J.*

Flexible
Sier-Bath GEAR COUPLINGS
Founded 1905 *Also mfrs. of Precision Gears, Rotary Pumps* Member A.G.M.A.

If you write maker identify as IEN - 10302

ASKANIA REGULATOR COMPANY
280 E. Ontario Street, Chicago 11, Illinois
Subsidiary of General Precision Equipment Corp.

NEW LITERATURE—*Continued*

If you write maker identify as IEN - 0835

PIPE FITTINGS . . Repair clamps to stop pipe leaks, also types to seal leaks in welded joints, threaded joints, valve reseaters. Catalog 54, 28 pages. M. B. Skinner Co., 3502 W. Sample St., Dept. IEN, South Bend 19, Ind.

If you write maker identify as IEN - 0836

FOAM PLASTIC . . Gas-expanded thermosetting cellular material, rigid or flexible, can be foamed in place to fill or be cast to shape. "Lockfoam" booklet, 32 pages, tells about structural, electronic, insulation, packaging, buoyant applications, also gives performance curves. Nopco Chemical Co., Essex & First St., Dept. IEN, Harrison, N. J.

If you write maker identify as IEN - 0837

PLASTIC SHEET . . Mylar polyester film combines properties of tensile and dielectric strength, resistance to moisture and corrosion, wide operating temperature range. Bulletin MB-1, 8 pages. E. I. du Pont de Nemours & Co., 2518 Nemours Bldg., Dept. IEN, Wilmington 98, Del.

If you write maker identify as IEN - 0838

PRINTING MACHINE . . Office-size whiteprint machine, dry ammonia process, has 20-inch capacity for cut sheets or roll stock to duplicate drawings, letters, forms. Copy-Master Bulletin 54-C-5, 4 pages. P & H Sales Corp., 5640 N. Western Ave., Dept. IEN, Chicago 45, Ill.

If you write maker identify as IEN - 0839

PYROMETER SUPPLIES . . Thermocouples and packing glands in a variety of designs and metals. Catalog 1530, 16 pages, has list prices and a wire size-resistance table. Conax Corp., 4515 Main St., Dept. IEN, Buffalo 21, N. Y.

If you write maker identify as IEN - 0840

PYROMETER SUPPLIES . . Thermocouples in base and noble metals, temperature-millivolt tables for calibration, protection tubes, insulators, leadwire. "Pyrometer Accessory Catalog", 32 pages, includes list prices. West Instrument Corp., 525 Noble St., Dept. IEN, Chicago 22, Ill.

If you write maker identify as IEN - 0841

REAMING . . Stub screw machine reamers in decimal sizes from 1/32 to 1½ in.; also straight-shank chucking reamers from 1/32 to ½ inch. Two price lists, 4 pages each. Glenbard Tool Mfrs., 216 N. Clinton, Dept. IEN, Chicago 6, Ill.

If you write maker identify as IEN - 0842

RECTIFYING . . Information on standard selenium cell sizes and ratings, performance curves, a set of application circuit diagrams, operating suggestions. Bulletin 6.400, 28 pages. Fansteel Metallurgical Corp., 2202 Sheridan Road, Dept. IEN, North Chicago, Ill.

If you write maker identify as IEN - 0843

RECTIFYING . . Bulletin 177 has 24 pages of information on selenium rectifiers including circuits, methods of connecting stacks, ratings on single and three-phase stacks to 260 volts input and 30 amperes. Radio Receptor Co., 251 W. 19th St., Dept. IEN, New York 11, N. Y.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10303

CHAINVEYOR

***NEW* LOW COST OVERHEAD CONVEYOR** *of Revolutionary Design for loads up to 60 lbs. per foot.*

Typical Industrial Installation—Illustrates flexibility and simplicity of installation. System is 190 feet long with equivalent of 52 vertical and horizontal 45-degree curves. Total weight carried, 5800 lbs. Driven by ½ HP motor at speed of 10 to 30 F.P.M.

We can't adequately describe the advantages of CHAINVEYOR in limited space. Completely enclosed — Simplicity of design — Reduced bulk, weight — 15" radius curves — Full ball bearing chain — Curves, chain scientifically heat-treated to "file hardness" triples life— Simple rugged power drive — So easily installed that most buyers do it themselves for a total cost that is most interesting.

Nationally Distributed by MATHEWS CONVEYER COMPANY Ellwood City, Pa. with offices in all principal cities.

New catalog gives complete information Write for it!

United States Spring & Bumper Co.
4951 Alcoa, Box 2475 Terminal Annex
Los Angeles 58, California

If you write maker identify as IEN - 10304

ELECTRONICS MANUFACTURER

REPORTS OVER 30% SAVINGS IN

DEGREASING SOLVENT

Raytheon Mfg. Co. reports over 30% savings in degreasing solvent since the installation of its new Phillips cross-rod conveyorized degreaser. In degreasing operations for its highly reliable quality line of receiving tubes, Raytheon also reports these added advantages: Automatic adjustable timing cycle for uniform degreasing; savings in operator time; minimum fume exposure; and consistently cleaner parts. Just another story of Phillips efficiency degreasers. Check with us today for the answer to your cleaning problems. We'll be glad to help you with your "problem" parts. Send us a sample for test with the new PHILLIPS "Ultra Clean" process.

PHILLIPS

VAPOR DEGREASERS

The Phillips cross-rod conveyorized degreaser installed at Raytheon's receiving tube division.

Look for us at the National Metal Exposition—Chicago Nov. 1-6 Booth 1319

Send for your copy of the Phillips Catalog showing a complete line of units—one for every job.

PHILLIPS MANUFACTURING COMPANY
ENGINEERED METAL CLEANING EQUIPMENT
3461 TOUHY AVENUE • CHICAGO 45, ILL.

In Canada Phillips equipment is manufactured under license by Williams Tool Corp. of Canada, Ltd., Brantford, Ont.

If you write maker identify as IEN - 10305

SICK COMPRESSOR? Your Westinghouse Distributor can take it to his fully equipped shop for a major overhaul.

Get Fast Service

when you need compressor repairs

• Your Westinghouse Air Compressor Distributor knows how important a good air supply is to your business. So when you call him for repair service or a new air compressor, he'll get to your shop or station fast.

LE ROI

Westinghouse Air Compressor Distributors are located throughout the country. Each distributor has a fully equipped repair shop, an experienced maintenance crew, and a complete stock of Westinghouse Air Compressors and repair parts. He's listed in the classified section of your telephone directory.

LE ROI COMPANY

A Subsidiary of Westinghouse Air Brake Co.
MILWAUKEE 14, WISCONSIN
Plants: Milwaukee • Cleveland — Greenwich — Dunkirk, Ohio
Coldwater, Michigan

Manufacturers of air compressors, rock drills, engines, loaders and mixers.

Factory Branch: EMERYVILLE, CALIF.
Distributors throughout the United States . . . Consult your Classified Directory.
Distributed in Canada by: Canadian Westinghouse Co., Ltd., Hamilton, Ontario

A LOT OF AIR HERE. Your Westinghouse Distributor carries a full stock of Westinghouse Air Compressors for fast delivery.

If you write maker identify as IEN-10307

The Model F-1 shown here is a single pole, double throw thermostat used to switch circuits from high to low heat where two heating elements are used. May be used to operate fans in air duct or agitators in tank, etc., when such operations in combination with heaters are desired.

Write for Catalog.

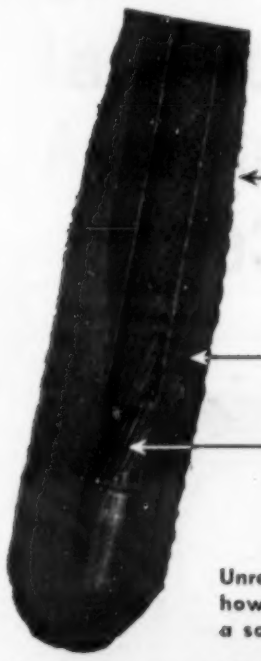
Robertshaw-Fulton CONTROLS COMPANY

ROBERTSHAW THERMOSTAT DIVISION, Youngwood, Pennsylvania

If you write maker identify as IEN-10308

OKONITE RUBBER SPLICING TAPES

bond perfectly for a lasting splice



1. Okolite and Okoprene Tapes bond together perfectly.

2. No separate layers—Okolite Tape has fused into a solid mass of insulation.

3. Impression left by conductor strands shows absence of air pockets.

Unretouched photograph showing how Okonite Rubber Tapes fused into a solid, uniform wall of insulation.

There are no voids or separate layers in this section cut out of a splice in a 5-kv unshielded cable. The Okolite High Voltage Tape, applied over the conductor, is fused into a solid and completely uniform layer of insulation. It is ozone- and moisture-resistant and has high dielectric strength, high insulation resistance and excellent aging properties.

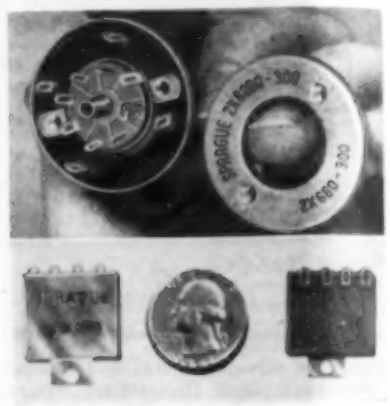
Nor is there any separation between the Okoprene Tape, which replaces the sheath, and the Okolite Tape. Okoprene Tape supplies the same tough weather, oil, acid, and heat resistance given by the neoprene sheath. Okonite's instruction sheets, IE-5678, supply valuable information on the techniques of making better splices. For a set, write today to the manufacturer, The Okonite Company, Passaic, N. J.

AVAILABLE THROUGH AUTHORIZED DISTRIBUTORS ONLY.

If you write maker identify as IEN-10310

Capacitor - Ceramic designs with ratings from 100 to 500 volts dc.

Source: SPRAGUE ELECTRIC CO.
165 Marshall St., Dept. IEN, North Adams, Mass.



Details on request

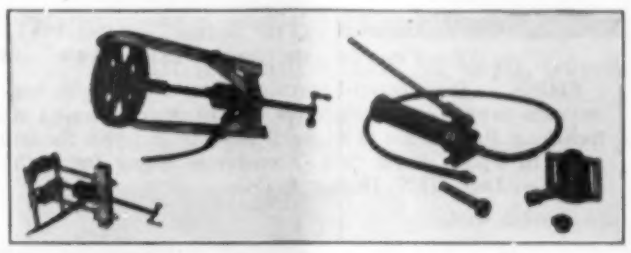
Bulletin 610 is a new unit in the company's line of electronic equipment capacitors to fit around a seven pin miniature tube socket. It can be supplied with 2, 3 or 4 capacitor sections. Positive positioning of the short leads between the capacitor terminals and the socket terminals eliminate lead dress problems and permits "hot" circuit design.

Bulletin 611 consists of 1 to 4 sections in a shallow metal pan filled with a protective phenolic resin for moisture resistance. This unit mounts flat against a chassis by a screw or rivet. It offers fixed lengths of lead to the socket terminal when mounted adjacent to a miniature tube socket. Vibration is no problem.

If you write maker identify as IEN-10311

Pulling - Hand hydraulic tools to remove tight gears, pulleys, wheels

Source: ARMSTRONG-BRAY & COMPANY
5389 Northwest Highway, Dept. IEN, Chicago 30, Ill.



Illustrated in detail in Bulletin HY-554

Hydragrip trade names a new assembly of hand operated hydraulic pump, connecting hose and spring backed single acting ram for use with a line of gear, pulley and wheel pulling attachments. The ram provides thrust to 35,000 pounds. The handle on the pump also serves to carry the unit from one location to another. A manual pressure relief valve and an independent safety valve are part of the standard equipment. The high pressure hose is equipped with quick acting couplings.

If you write maker identify as IEN-10312

Astra Corporation, 6165 Mayfield Road, Dept. IEN, Cleveland 24, Ohio, has set up facilities to take your waste materials that contain diamond dust and to reclaim this dust. It is graded in micron sizes to your specifications, is packed 10 carats per ampoule and is shipped back to you. Service charge is a bit less than one-half the original cost of the dust.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10313

Only .94 cu. inches in size—yet it carries 5-amp. loads in the 4PDT combination. It's available up to 6PDT, and with class "H" insulation.

It's extra efficient, too, having only one air gap. By spring-holding the armature rigidly in place, and using cross-bar contacts, all alignment problems are eliminated. Insulation is inorganic, hence there is no gassing or bubbling.

The ADVANCE TQ operates on 90 milliwatts or less. Withstands 10G vibration (10 to 55 CPS). Ambient temperature range: —55°C to +125°C. Life expectancy: 1,000,000 cycles. Open and hermetically sealed types.

Write for details.

ADVANCE RELAYS

ADVANCE ELECTRIC AND RELAY CO.

2435-J NORTH NAOMI STREET • BURBANK, CALIFORNIA

Sales Representatives in Principal Cities of U. S. and Canada

---

If you write maker identify as IEN-10314

Low cost room comfort ...with

Sylphon Automatic Radiator Valve No. 885, for exposed radiators. (No. 895, not shown, for enclosed radiators.)

SYLPHON Automatic Radiator Valves

• Here's the money-saving answer to the problem of too much or too little heat. Sylphon Automatic Radiator Valves assure positive, uniform temperature control in one room, an office or entire plant. Easily installed on your present radiators. Simply constructed, self-powered, self-contained, fully modulating. Pay for themselves many times over in fuel savings. Write for Bulletin RN-80.

Robertshaw-Fulton CONTROLS COMPANY

FULTON SYLPHON DIVISION • KNOXVILLE 1, TENN.

If you write maker identify as IEN-10315

Complete Line of HEAD BLOCKS WINCHES COUNTERWEIGHT SYSTEMS

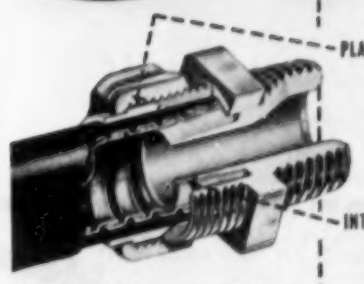
Loads ranging from a few pounds to 40 tons and more must be hoisted and moved quickly and safely on the theatre stage. The complete line of head blocks, hand and motorized winches and counterweight systems — all standard catalog items — which J. R. Clancy, Inc. has supplied for the stage for 76 years is available to meet the many similar requirements of modern industry.

Send for Catalog

Theatrical Equipment Division

J. R. CLANCY INC.
1020 W. BELDEN AVE., SYRACUSE 4, N. Y.

If you write maker identify as IEN-10316



PLASTIC GRIPPING RING

- Seals out all moisture, oil, and corrosive fluids.
- Protects plastic conduit sheath against damage.
- Gives visual installed assurance of a proper ground.
- Color-coded for each conduit size.

INTEGRAL TAPERED BODY WEDGE

- Positively grounds metal spiral inside conduit.
- Fits all thicknesses and convolutions in standard Liquid-Tight Flexible Metal Conduit.
- Grounding member integral with body.

Self-grounding . . . no complicated assemblies. Conduit slides straight into complete connector—no need to disassemble connector. Same wrench fits both body and gland nut. For conduit from ⅜" to 2". Straight connectors, 45° and 90° elbows available. Write for folder. T323

THE THOMAS & BETTS CO.
INCORPORATED
42 Butler Street, Elizabeth 1, New Jersey
Thomas & Betts Ltd., Montreal, P.Q., Canada

If you write maker identify as IEN - 10317

For Production Line Applications and General Lifting

Capacities: ¼ to 2 tons

● Plug in on 110 single phase or 220—440 volt power lines. Fast. Safe. Herc-Alloy flexible welded load chain. Lifetime lubrication. COMET hoists save energy... reduce materials handling costs. Anyone can operate.

COMET CATALOG No. 150—18 pages of illustrated information sent on request or ask your CM Distributor.

CHISHOLM-MOORE HOIST DIVISION
COLUMBUS McKINNON CHAIN CORPORATION
TONAWANDA, NEW YORK
DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND
In Canada: McKinnon Columbus Chain Limited St. Catherines, Ontario

If you write maker identify as IEN - 10318

ideas...worth hundreds of dollars

for the price of a 3¢ stamp

Here is a collection of interesting case histories of production and maintenance problems which were solved with almost unbelievable ease and speed by the unusual use of a hose clamp to fasten things together and "Hold 'em tight" in place. Send for Clampways Ideas" while you're thinking about it*.

"The Sign of a Good Hose Clamp"

PUNCH-LOK Company

do it now

Punch-Lok Company
Dept. B, 321 North Justine Street
Chicago 7, Illinois

send me Clampways ideas FREE

Firm Name_____
My Name_____ Title_____
Address_____
City_____ State_____

4962

NEW LITERATURE—Continued

If you write maker identify as IEN - 0844

RESISTORS . . . Chart S-074A, 11 by 15 inches, lists types, characteristics, ranges, sizes, approximate prices for fixed and adjustable resistors, variable resistors, special products such as germanium diodes. International Resistance Co., 401 N. Broad St., Dept. IEN, Philadelphia 8, Pa.

If you write maker identify as IEN - 0845

RUBBER PRODUCTS . . . Drive belts in flat, V and Poly-V design, also conveyor belts, hose, molded parts. Condensed Catalog 25-C, 24 pages, presents data summaries. Raybestos-Manhattan Inc., 61 Willett St., Dept. IEN, Passaic, N. J.

If you write maker identify as IEN - 0846

SCREENING . . Woven wire screens to size and separate materials such as coal, ore, stone, sand. Bulletin 66, 8 pages, carries a list of sizes in stock. Simplicity Engineering Co., Ralph St., Dept. IEN, Durand, Mich.

If you write maker identify as IEN - 0847

SCREW DRIVING . . Pneumatic tools, particularly for production assembly operations. Bulletin 5056-A, 20 pages, shows straight, offset, angle-type tools for slotted and recessed-head screws, also nut runners. Ingersoll-Rand Co., 11 Broadway, Dept. IEN, New York 4, N. Y.

If you write maker identify as IEN - 0848

O-RING SEALS . . Molded from synthetic rubber for oil and fuel-resistant service. Product Catalog, 24 pages, gives dimensional data for installation, standard sizes and tolerances, service recommendation chart. Stillman Rubber Co., 5811 Marilyn Ave., Dept. IEN, Culver City, Calif.

If you write maker identify as IEN - 0849

SIGNS . . Color-printed warning tags, 4 by 7½ inches, to indicate danger on switch boxes, valves, machines and other locations. Picture list of 84 stock designs and "No Smoking" signs in 8-page Form 2114. Stonehouse Signs Inc., 9th at Larimer, Dept. IEN, Denver 4, Colo.

If you write maker identify as IEN - 0850

STEELS . . Cold-rolled carbon spring steel, alloy strip, stainless steel is described in 32-page Bulletin TM-9 as to temper, finish, type of edges, hardness testing, weight. Crucible Steel Co., Box 88, Dept. IEN, Pittsburgh 30, Pa.

If you write maker identify as IEN - 0851

STRAPPING . . Pneumatic tools stretch flat steel strapping and hold it ready for sealing. They are intended primarily for production-line packaging. Bulletin AD-146, 4 pages. Acme Steel Co., 2840 Archer Ave., Dept. IEN, Chicago 8, Ill.

If you write maker identify as IEN - 0852

PAINT TESTING . . Instruments to measure gloss, color, viscosity, film thickness, hardness, washability of paint and other products. 30th Anniversary Catalog, 60 pages, covers these and a line of accessories. Gardner Laboratory Inc., 4723 Elm St., Dept. IEN, Bethesda 14, Md.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10320

THE MAXIM SILENCER COMPANY
71 HOMESTEAD AVENUE • HARTFORD 1, CONN.

If you write maker identify as IEN - 10321

LARGE SAVINGS

on pilot run and short-run stampings

Yes, it *is* possible—but it's a special skill of ours.

It's done with a new price-slashing method of making dies, used in conjunction with special machinery. In other cases we use custom equipment for die-less duplication by our own Machine-Cut Method.

FOR EXPERIMENTAL OR PRODUCTION REQUIREMENTS at rock-bottom prices, send us your blueprints. And make sure you get our latest, fact-packed literature.

STAMPINGS DIVISION
"ONE PIECE OR ONE MILLION"

LAMINATED SHIM COMPANY, INC.

2109 UNION STREET • GLENBROOK, CONNECTICUT

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Make Maintenance Easier, Less Costly

IBM ELECTRONIC TIME AND PROGRAM SIGNALING SYSTEMS

. . . with 12-hour self-regulation synchronize clocks and signals to the second . . . control utilities—automatically.

You need no special unit-to-unit wiring. Functions are supervised electronically—through regular AC lighting lines • Simple installation saves you time, cost, effort • System may be expanded or altered inexpensively.

Write or call IBM for full information.

You're RIGHT ON TIME with

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If you write maker identify as IEN - 10324

THIS number

brings you THIS 42-page catalog

telling you how to get up to 6 to 1

savings on ball bearings

Millions of dollars are wasted because an important principle of bearing design is ignored. This catalog describes the principle and shows you how to save up to 85% on many bearing purchases. Write for it today.

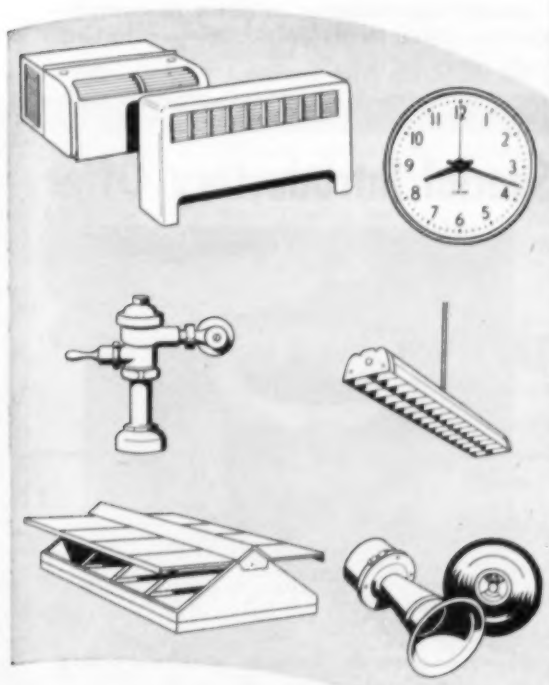
The oldest, largest manufacturer of "Commercial" Ball Bearings

SCHATZ "Commercial" BALL BEARINGS

THE SCHATZ MFG. CO. • 6750 Fairview Ave., Poughkeepsie, N. Y.

If you write maker identify as IEN - 10325

Control Utilities Automatically



IBM ELECTRONIC TIME AND PROGRAM SIGNALING SYSTEMS

. . . eliminate need for manual supervision in the operation of many of your plant's facilities.

They can be programmed to sound audible signals, open and close ventilators, control water flow, switch light circuits and heating and air conditioning systems on and off.

You conserve manpower . . . avoid the possibilities of loss of service and waste of natural power . . . save time, effort, money.

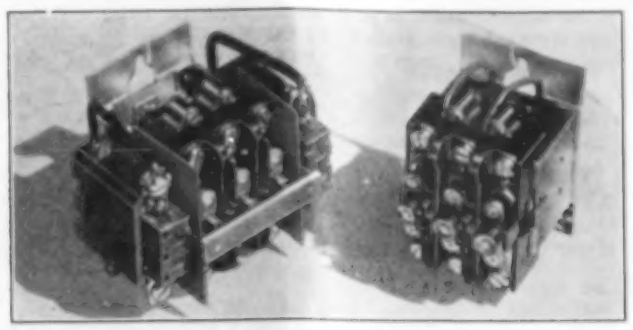
IBM *Time* **EQUIPMENT**

INTERNATIONAL BUSINESS MACHINES
590 Madison Avenue, New York 22, N. Y.
Branch offices located in principal cities

If you write maker identify as IEN - 10327

Motor Control - Magnetic starter and contactor for refrigerant motor

Source: ARROW-HART & HEGEMAN ELECTRIC CO.
103 Hawthorn St., Dept. IEN, Hartford 6, Conn.



Bulletin MS-AC-79

Motors rating to 7½ hp., such as those employed in hermetically sealed refrigerant compressor assemblies, are served by this new line of magnetic starters and contactors. The starter, to the left in the illustration, takes the company's Type-QT quick trip heater on the two sides of the contactor assembly. The heater unit is interchangeable in ratings from 3.5 to 33.7 amp. when mounted with the available steel enclosure. The size range is sufficient for all sizes of ac. compressor motors to 7½ hp.

Operation is by a new Double E magnet which permits use of a small assembly. Straight through wiring conserves space and minimizes time required for installation. Slotted mounting holes also assist the installation. The starter, without the enclosure, measures 3⅛ to 4$\frac{7}{16}$ in. in base width, 3½ in. in height as the unit is shown in the illustration and 3⅜ in. from front to back. The contactor measures 2¼ to 2⅝ by 3½ by 3$\frac{1}{16}$ inches.

If you write maker identify as IEN - 10328

Drilling - Motor driven head, air hydraulic feed, to ¾ in. in steel

Source: ROCKWELL MFG. COMPANY
624 N. Lexington Ave., Dept. IEN, Pittsburgh 21, Pa.

Air at 80 pounds

New drive has been developed for the company's motor driven drilling head, previously described IEN-9485-52, to provide selective speeds for the spindle. The new arrangement mounts the motor on top of the head on a solid base and employs V-belt connection between two 4-step cone sheaves. Spindle speed range is 590 to 5,000 rpm. with a 1,800-rpm. motor. The drive can be applied to existing heads now in service or specified on new ones. A cast iron guard covers the sheaves and belt. It can be removed when a new speed is to be selected by repositioning the belt.

Spindle stroke is maximum at 6 inches. Feed movement employs shop air pressure for both rapid traverse and feed action. The latter is controlled hydraulically and is adjustable to a maximum of 180 ipm. Rapid traverse is maximum at 300 ipm. for the improved head.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10329

Chances are no matter what business you're in, there's a WELLMAN aluminum or magnesium casting somewhere in the picture.

For almost half a century, our four complete plants and experienced personnel have been producing castings on the lighter side to meet many requirements.

Let us hear from you, or write for our new catalog No. 53.

Well-Cast MAGNESIUM AND ALUMINUM CASTINGS
Well-Made WOOD AND METAL PATTERNS

THE WELLMAN BRONZE & ALUMINUM CO.
Dept. 9, 12800 Shaker Boulevard Cleveland 20, Ohio

If you write maker identify as IEN - 10330

Viscous Materials

FLOW LIKE WATER

through

Parks-Cramer Jacketed Pipe and Fittings

You can't find a better way to convey asphalt, rosin, wax, sulphur, gums, syrups, or other high melting point solid or viscous materials than through Parks-Cramer Jacketed Lines.

Steam, hot water, hot oil, or Dowtherm keep the contents in a quick moving liquid state. Plug-ups are eliminated.

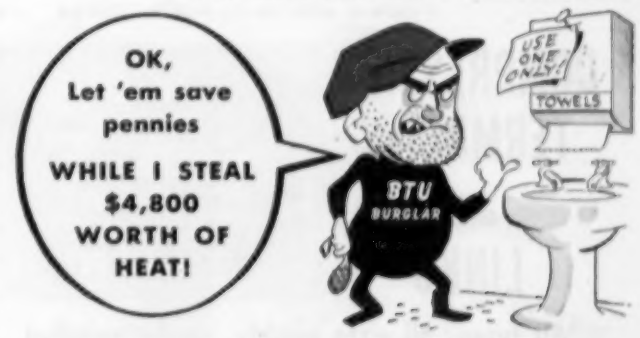
Jacketed Cocks and Fittings are cast in semi-steel, Ductile iron, Ni-Resist and many other materials.

Pipes and Fittings are made in standard sizes with 1¼", 1½", 2", 3", and 4" inside diameter, and include Two-way and Three-way Cocks, Tees, Crosses, 90° and 45° Elbows, and Expansion Joints and Strainers, also 2" and 3" Relief-Valves.

Write for Bulletin No. 152E

Parks-Cramer Company
ENGINEERS and CONTRACTORS
Fitchburg, Massachusetts

If you write maker identify as IEN - 10331



Typical example: A manufacturer had been using ordinary firebrick for forge furnace linings. Came time for relining and they decided to try B&W *lightweight* Insulating Firebrick. Result: Their fuel bills went down fully 49% — a $4,800 saving in just one furnace. Heavy furnace linings waste your fuel dollars two ways: They soak up and hold large quantities of heat which are lost when the furnace is cooled; and they conduct and lose too much heat through the wall. Lightweight insulating firebrick, containing millions of tiny air cells, heat up and cool quickly, absorbing and storing very little heat. Also, they resist heat flow, keeping it inside the furnace to do productive work.

The lighter the insulating firebrick the greater your savings on fuel. The lightest you can buy are B&W Insulating Firebrick.

THE BABCOCK & WILCOX CO.
Refractories Division
General Offices: 161 East 42nd St., New York 17, N. Y.
Works: Augusta, Ga.

If you write maker identify as IEN - 10332

the efficiency, economy and dependability of Wells Heavy-Duty Cut-Off Saws

SEARCHING for a way to reduce metal cut-off costs? Here's an answer—the Wells No. 12-Saw. It's a heavy duty, hydraulically operated saw with automatic cutting cycle designed to step up production with greater accuracy. Capacity is 12" x 16", rectangular, 12¾" dia., rounds. Ask your Wells Dealer for full information or write direct.

Wells

Products by Wells are Practical

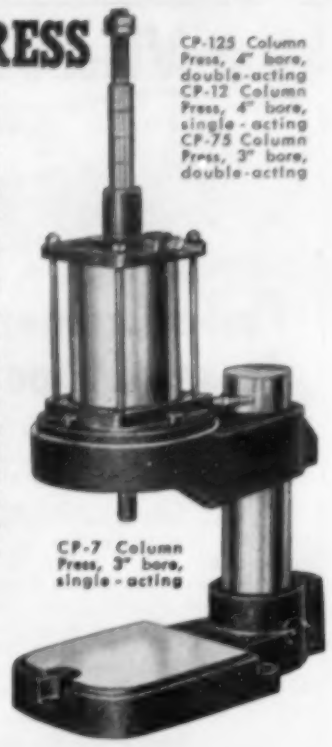
METAL CUTTING BAND SAWS

WELLS MANUFACTURING CORPORATION
1111 MADISON ST., THREE RIVERS, MICH.

If you write maker identify as IEN - 10333

New AIR PRESS

One adjustable stand takes air cylinders (3" or 4" bore) single-acting or double-acting. Double-acting cylinder (shown) furnished with any length stroke from 0" to 36". The press illustrated has 4" stroke. Single-acting cylinders have maximum 4" stroke; return stroke by internal spring. Upper ram of double-acting presses has depth stop nuts and collars regulating the stroke exactly. Single-acting press has no upper ram nor depth stop adjustment. Mounting bracket permits vertical and radial adjustment. Solid steel column. Table is machine surfaced but not hardened, to allow mounting of special tooling.



NEW CATALOG READY!

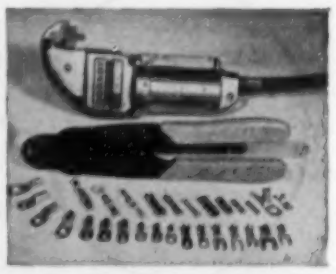
The new Mead Air Power Catalog shows Mead's versatile new Column Presses, and full line of single and double-acting cylinders also air-operated Presses, Vises, Chucks, Hammers, Work Feeders — for faster, money-saving production. Write!

MEAD SPECIALTIES COMPANY

4114 No. Knox Ave., Dept. E-94-A, CHICAGO 41, ILLINOIS

If you write maker identify as IEN - 10334

COMPRESSION TERMINALS and LINKS



All types, all sizes quickly, easily installed with wide variety of matched tooling

All sizes of solderless lugs and links for all conductors and all applications in manufacturing and plant wiring can be rapidly, economically installed by means of Burndy tooling, coordinated with specific manufacturing methods and production requirements.

Burndy Hylugs and Hylinks are of one-piece, pure copper construction, so they can be indented on any side of the barrel and they can't split. There are no intermediate contact surfaces — current is carried by the entire cross-section. Plated to resist corrosion. Listed by Underwriters' for #22 through 2000 Mcm.

Intimate high-pressure contact between conductor and connector is assured by Burndy matched installation tools. Manual, hydraulic, and pneumatic tools are designed for portable, on-the-job use and for production bench operation.

For complete details and catalogs, write

Dept. H, BURNDY, Norwalk, Connect.

If you write maker identify as IEN - 10335

VARGLAS permafil SLEEVING

Shortly after our first announcement of Varglas Permafil Tubing, engineers began praising its many features — especially its extra flexibility and toughness.

Now, for the first time, Varglas Permafil Sleeving is available in N.E.M.A. grades C-2 and C-1. This new sleeving is lighter coated than the Permafil Tubing but it frequently does the insulating job where tubing was formerly used — and, of course, the cost is much less. Available in coils. Write for free test samples and prices.

VARFLEX CORPORATION

514 W. Court Street Rome, N. Y.

USEFUL INFORMATION — Concluded

If you write maker identify as IEN - 0853

TESTING . . Photometer to measure smoke and aerosol mass concentration in air pollution studies, filter efficiency and air-wash tests. Bulletin JM-1000-A, 8 pages. Phoenix Precision Instr. Co., 3803 N. 5th, Dept. IEN, Philadelphia 40, Pa.

If you write maker identify as IEN - 0854

TRACTORS . . Gasoline-power tractor with integral hydraulic pump and controls to operate attachments such as crane, snow plow, mower. Bulletin AD-5868, 16 pages. Ford Motor Co., 2500 E. Maple Rd., Dept. IEN, Birmingham, Mich.

If you write maker identify as IEN - 0855

LIFT TRUCK . . "Safety Silhouette" is the name given to the company's electric fork truck. The operator sits in a lowered seat below the 68-in. overall height. This and other features in 4-page Bulletin 5001-B. Yale & Towne Mfg. Co., 11000 Roosevelt Blvd., Dept. IEN, Philadelphia 15, Pa.

If you write maker identify as IEN - 0856

VALVES . . Comparative data for iron, bronze, cast steel, forged steel, lubricated-plug valves by the company and 15 other manufacturers. Bulletin 194, "Valve Comparison Chart", 24 pages. Ohio Injector Co., Dept. IEN, Wadsworth, Ohio

If you write maker identify as IEN - 0857

SOLENOID VALVE . . Pressure rating is to 5,000 lb. at 150 deg. F., to 2,500 lb. at 450 deg. F. in direct-lift design. Bulletin HP-201, 4 pages. Atkomatic Valve Co., 545 Abbott St., Dept. H-195, Indianapolis 25, Ind.

If you write maker identify as IEN - 0858

OPERATING VALVES . . Flow-control valve for hydraulic service to 3,000 lb. enables you to dial the setting desired. Bulletin 143-A, 4 pages. Denison Engineering Co., 1160 Dublin Rd., Dept. IEN, Columbus 16, Ohio

If you write maker identify as IEN - 0859

WELDING ELECTRODES . . Twenty-two types for stainless steel welding are presented in 24-page Bulletin WE-166, by a selector chart, by detail specifications, and by a composition table, along with background data. A. O. Smith Corp., P. O. Box 584, Dept. IEN, Milwaukee 1, Wis.

If you write maker identify as IEN - 0860

WELDING TORCHES . . Hand torches for gas cutting, welding, brazing, heating, descaling, flame hardening operations. Catalog 818, 36 pages, covers tips to outfits. Air Reduction Sales Co., 60 E. 42nd St., Dept. IEN, New York 17, N. Y.

If you write maker identify as IEN - 0861

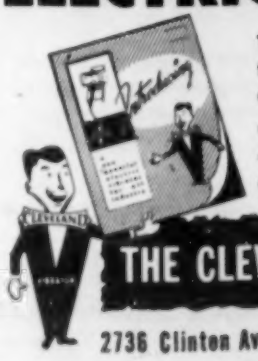
WIRE ROPE SLINGS . . Unbalanced loads can be lifted level with the company's Adjust-A-Leg sling, which adjusts itself and locks into position. Rating is ¾ to 50 ton. Drawings in 4-page Bulletin 354 show how the sling works. Caldwell Co., 1830 Camp Ave., Dept. IEN, Rockford, Ill.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10336

NEW COMPACT POWERFUL

ELECTRIC VIBRATOR



To speed the flow of stubborn material from hoppers, bins and chutes of all sizes and shapes.

Obtainable in all voltage, phase and cycle requirements.

Write today for complete literature.

THE CLEVELAND VIBRATOR CO.

2736 Clinton Avenue • Cleveland 13, Ohio

If you write maker identify as IEN - 10337

for high conductivity forgings and castings for resistance welding...

Specify W·W

Seam Welding Wheels
Bushings · Knees
Shafts · Spindles
and other current-carrying parts

Long, specialized experience with welding requirements establishes WW as a leading reliable source of high conductivity, high strength forgings and castings—in rough or finished form. Add to this experience WW's participation in Fansteel's continuous metallurgical research. Count on WW for the right alloy every time. WE MAKE THEM OURSELVES, WE KNOW THEY'RE RIGHT.

YOURS
Without Obligation
. . . this informative technical catalog. Write today.

W·W

W544D

WW ALLOYS, INC.
Division of Fansteel Metallurgical Corporation
11644 CLOVERDALE AVENUE, DETROIT 4, MICHIGAN

If you write maker identify as IEN - 10338

WESTCOAT
Peelable Plastic Coating

Absolute Protection from Rust and Abrasion for Tools and Metal Parts

WESTCOAT tough plastic coating completely protects metal parts from rust and abrasion. Protects cutting edges and fine finishes.

Simply dip—coating solidifies in seconds—lasts for years. Easily peeled off—part immediately ready for use.

Special Introductory Offer

One—thermostatically controlled, electrically heated dip tank. One gallon capacity. 115 Volt, 60 cycle.

25 lbs.—WESTCOAT AMBER peelable plastic—enough to cover 10,000 square inches.

Regular Price $74.85

Special Offer price $59.50

F.O.B. Elyria, Ohio
This offer good for limited time only

PROTECT WITH WESTCOAT

Order Special No. 305 today!

Western Coating Co.

P. O. Box 227, Elyria, Ohio

Representatives in principal cities

If you write maker identify as IEN-10340

To control AIR... ANYWHERE use NP Control Valves

INVESTIGATE National Pneumatic Co., Inc.'s wide range of air control valves, from 0 to 125 p.s.i. with ¼" porting, in 3 way and 4 way types. NP valves are modern in design, ruggedly constructed and require minimum maintenance.

PILOT CONTROL VALVE
Offers automatic retraction or continuous cycling when used in a system incorporating remote control valves.

DC-31810 HAND OPERATED CONTROL VALVE
Simple design for long, dependable service. Sturdy construction, easy action.

DC-39970 FOOT OPERATED CONTROL VALVE
Rugged, sure, dependable action. Pedal housing assures *safe* operation.

THERE IS AN NP VALVE for every air-control job. In addition to the valves shown here, NP also makes the following types of valves: Pressure regulating; speed adjusting; quick release; ratchet. Write today for bulletins to Industrial Actuators and Controls Division.

NATIONAL PNEUMATIC CO., INC. AND **HOLTZER-CABOT** DIVISIONS

125 Amory St., Boston 19, Mass.

Sales Service Representatives in Principal Cities throughout the Free World

Designers and manufacturers of mechanical, pneumatic, hydraulic, electric and electronic equipment and systems

If you write maker identify as IEN-10341

you may not see it . . .

or ***feel it,***

but ***it's there!***

Excessive moisture vapor causes corrosion, fungus growth and other damage within sealed containers.

When relative humidity is not controlled . . . Precision equipment corrodes and fails. Optical instruments fog and are temporarily useless. Electronic and radio equipment lose efficiency. Certain foods and drugs lose freshness or deteriorate.

DriAire offers proven solutions to many of these problems. As the largest manufacturer of moisture control devices, DriAire welcomes any problems of humidity control and indication. Your inquiries are invited.

DriAire INCORPORATED

SOUTH NORWALK, CONNECTICUT

If you write maker identify as IEN-10342

Now Constant Stability of Tolerances at 1,500,000 CYCLES!

BASIC SWITCH

Gives You More Than Just Long Life!

- Maintains accurate repeatability and positive snap-action . . . even at 1,500,000 cycles and over!
- Long life lowers switch costs . . . minimizes "down-time" and increases efficiency of operation.
- Durable, compact plastic case permits great flexibility of application. Available in a wide selection of models, including "reset". Rated at 10 amps 125/250 v. AC; 30 v. DC inductive.

WRITE FOR DETAILS IN DATA SHEET STK-9

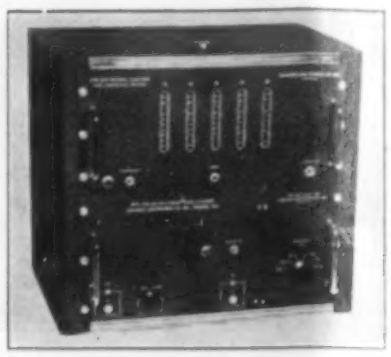
see our catalog in PRODUCT DESIGN FILE or write for copy

ELECTRO-SNAP SWITCH AND MFG. CO.
4224 West Lake Street, Chicago 24, Illinois

If you write maker identify as IEN-10343

Counting - Electronic instrument with interchangeable function control

Source: ADVANCE ELECTRONICS CO.
451 Highland Ave., Dept. IEN, Passaic, N. J.



For test application

Type 1102 Advancetron is a new electronic counter consisting of three plug-in units. These include a decade counter and switching circuit, a timing unit and a function control unit. The latter can be selected to apply the instrument as a frequency phase counter, a **time interval** counter or a combination of time interval and frequency counter. Input sensitivity is 1 volt peak minimum. Operation is on 110-volt 50 or 60-cycle ac. Overall dimensions are 20¾ by 15 by 18 inches. The instrument is fitted with a standard 19-in. rack mounted panel. Accuracy is within one count per 100,000 or within 0.5 degree.

The counter and switching unit has a gate with interlocking arrangement and a decade counter consisting of five decimal units connected in tandem. The timing unit consists of a 100-kc. crystal oscillator and five stages of 10 to 1 frequency dividers. A switch on the front panel is turned to select the number of output pulses per second.

The function unit consists of two circuits known as Advancetron. One of them is used to generate a sharp pulse to start the counting of the signal from the timing unit. The other generates a similar pulse to stop the counting. The number displayed will correspond to the unknown phase angle.

If you write maker identify as IEN-10344

Plastics - Three molding materials, one phenolic and two thermoplastic

Source: BAKELITE COMPANY
30 E. 42nd St., Dept. IEN, New York 17, N. Y.

Technical data upon request

Type BMG-5000 Brown 15 is a new multi-purpose fast curing Bakelite phenolic molding plastic of particular interest to molders of electrical products such as wall plates, toggle switches, plugs for which the brown blends with natural woodwork and flooring. Properties include wide molding latitude, fast curing time for molding by compression, transfer or plunger method. Finished parts maintain critical dimensions when discharged hot from the mold.

Type SMD-3500 is a new general purpose Bakelite styrene thermoplastic combining high plasticity with fast set up to fill multiple cavities or to mold large pieces. The material has a high degree of clarity. Purity and uniformity of colors are maintained by completely enclosed production processes.

Type RMD-4001 is a new acrylonitrile styrene thermoplastic featuring free flowing characteristics, wide color possibilities and excellent clarity. It can be molded to close tolerances in thick and thin sections and in large areas without voids, bubbles or marks. The molded material can be turned, sawed, milled, drilled, threaded. This material is particularly suited for housewares such as tumblers, cups, refrigerator pans and shelves and for personal items such as comb and brush backs as well as novelties to include toys, pens and pencils, buttons.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10345

That is why design, construction and maintenance engineers specify

CADWELD®

. . . . the fusion weld that:

- **cannot loosen or corrode.**
- **is 100% electrically efficient.**
- **has small O. D. for easy insulating.**
- **requires no inspection.**

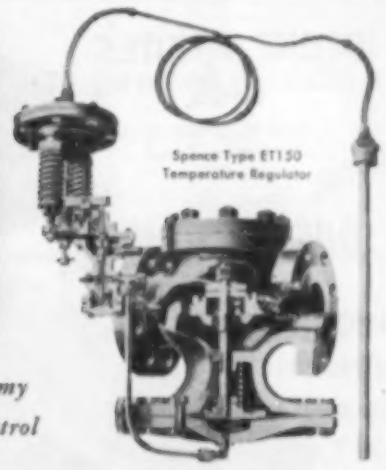
***For the best in* ELECTRICAL CONNECTIONS**

The Current Trend is CADWELD

ERICO PRODUCTS, INC.
CLEVELAND 5, OHIO

If you write maker identify as IEN-10346

NO Reducing Valve Needed



Here's real economy in temperature control

Because Spence Temperature Regulators are designed to limit heater steam pressures to an adjustable maximum, the need for a separate reducing valve is completely eliminated.

This means one relatively small combination pressure and temperature regulator replaces a reducing valve of the same size and a larger temperature regulator. Practically the entire cost of the large separate temperature regulator is saved. And, the total saving would also include the cost of a 3-valve by-pass along with all labor for installation.

This design feature is just one of the reasons for the thousands of Spence installations throughout American industry. *For details of other important design features, write for Temperature Regulator Bulletin.* SE-137

SPENCE ENGINEERING COMPANY, INC. Spence
WALDEN, NEW YORK

If you write maker identify as IEN-10347

MODERNIZE YOUR WARNING SIGNAL SYSTEM

with this NEW extra-compact powerful BENJAMIN SIREN!

TYPICAL APPLICATIONS OF THE BENJAMIN SIREN

for civil defense

for boiler alarms

for plant protection

This new siren is especially designed for modern multiple-signal installations, which overcome problems of atmospheric conditions, wind direction and industrial din. A small-yet-powerful high-torque, 10,000 r.p.m. motor and precision-machined housing makes possible extra-compact design. Famous Benjamin built-like-a-battleship construction prevents moisture from entering and assures long, trouble-free operation.

It's the 20th Century Pony Express!

FREE SIGNAL BOOK! Send for your copy of this most complete book on signaling! Benjamin Electric Mfg. Co., Dept. O, Des Plaines, Ill. 609

If you write maker identify as IEN-10348

Only 90 seconds to drill 3½" holes through 4" concrete slab with TRUCO WATER SWIVEL and TRUCO SWIVEL DIAMOND DRILL BITS

This combination can drill at high speed in hardest aggregates with only 150 lbs. pressure and ½" H.D. motor as against 1,000 lbs. pressure and 1"-1¼" H.D. motor specified for other tools. Truco combination can drill *reinforced concrete;* amazing drilling speed in brick, granite, ceramic tile, marble. Truco Water Swivel and Truco Swivel Diamond Bits can easily pay for themselves on your first job. Write for folder:

WHEEL TRUEING TOOL COMPANY
54-3200 West Davison Avenue • Detroit 38, Michigan

If you write maker identify as IEN-10349

IN ONE MINUTE'S TIME

AWS Class E-6012 electrode produced this fillet.

THIS MUCH MORE WELD

was made in the same time in the same steel plate

with the new AIRCO EASYARC 12 electrode

New AWS Class E-6024

Actual length of welds: E-6012—5 1/16", Easyarc 12—12". Current settings: 230 amps AC for E-6012, 275 amps AC for Easyarc 12. Both welds made in 1/4" mild steel plate with 3/16" diameter electrodes.

Write for "Pocket Guide to Airco Electrodes."

AIR REDUCTION

60 E. 42nd Street
New York 17, N. Y.

Divisions of Air Reduction Co., Inc.
Air Reduction Sales Co.
Air Reduction Pacific Co.
Represented internationally by Airco Company International

If you write maker identify as IEN-10350

FASTER . . . EASIER

PRECISION DEW POINT INDICATOR

★ The Alnor is the only dew point indicator that is a complete unit in itself . . . it is readily portable and does not require external coolants or auxiliary apparatus.

★ Controlled testing conditions are assured. Indications take place in an enclosed chamber . . . dew or fog is observed suspended in air—not on a polished surface. This means greater accuracy, faster reading—every time.

★ Simple, direct operation of the Alnor Dewpointer assures laboratory accuracy by non-technical personnel. Substantial carrying case protects it against the usual hazards of portable use.

★ Available in three ranges—for dew points between minus 20 deg. F. and room temperatures, from minus 80 deg. F. to 0 deg. F., and from -80 deg. F. to room temperature.

Write for Descriptive Bulletins. Illinois Testing Laboratories, Room 517, 420 N. La Salle St., Chicago 10, Ill.

Alnor PRECISION INSTRUMENTS FOR EVERY INDUSTRY

If you write maker identify as IEN-10351

Get This Informative Free Booklet on New Uses for Straits Tin

New, 20-page booklet tells important story of Straits Tin and its many new uses today. Fully illustrated. Includes sections on new tin alloys, new tin solders, new tin chemicals. Covers tin resources and supply. Malayan mining. Booklet is factual, informative—could well prove profitable to you. Mail coupon now.

THE MALAYAN TIN BUREAU

Dept. Q, 1028 Connecticut Ave., Washington 6, D.C.

Please send me a copy of your free booklet on new uses for Straits Tin.

Name_____

Firm Name_____

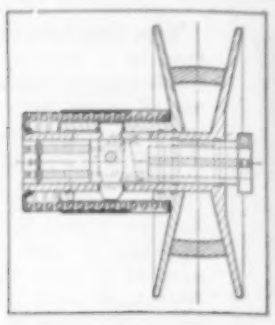
Street_____

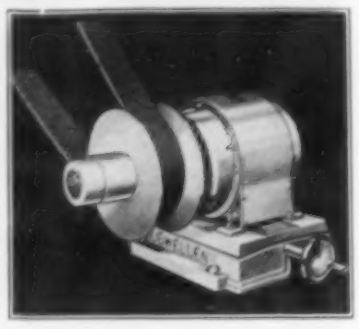
City_____ Zone____ State____

If you write maker identify as IEN-10352

Drive - Variable pitch sheave, V-belt and adjustable base or sheave

Source: LEWELLEN MFG. COMPANY
Dept. IEN, Columbus, Ind.





Bulletin, "Series 300"

The company announces improved design for its variable pitch V-belt sheave in which the belt remains on a fixed center. The sheave flanges open or come together equally on the two sides as belt tension is mechanically increased or decreased by moving a motor base or changing pitch on a driven sheave. Tension is maintained between the two flange faces by a spring of sufficient free length so there is negligible difference in holding pressure as the flange distance is increased or decreased.

The V-belt can be employed on a flat or crowned face pulley on the driven shaft. A sheave can be applied on the driven shaft and its effective pitch changed mechanically to change the speed without moving the motor on its base.

Six sizes range from 6 to 12 in. in outside diameter and from ¾ to 1⅝ in. in maximum bore. Pitch diameter ranges from 1.92 to 5.75 in. on the smallest unit and from 3.92 to 11.75 in. on the largest unit. Maximum belt width ranges from $1\frac{3}{16}$ to 2¾ inches. Belt thickness is 0.41 to 0.65 inch. Overall length of the variable sheave assembly is $5\frac{7}{16}$ to $10\frac{11}{16}$ inches. The company is prepared to supply belt, sheaves and motor base to meet given requirements.

If you write maker identify as IEN-10353

Sealing - V-type packing ring, synthetic rubber, ⅛ to 15 in. inside

Source: RAYBESTOS-MANHATTAN INC.
Dept. IEN, Manheim, Pa.

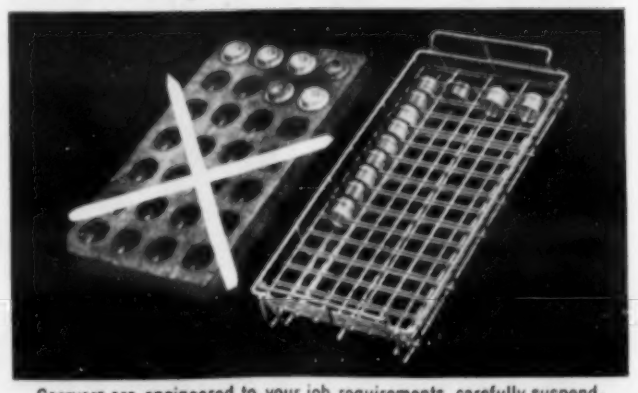
To 5,000 pounds

R/M No. 1225 is a new Homogeneous V-type packing ring made of a neoprene base compound developed for low friction, low swelling and high wear resistance. Type R/M No. 1275 is based on Buna-N compound which adds high resistance to attack by oil to the other characteristics. Impregnated fabric adaptors are recommended for use with the rings. Metal female adaptors also can be employed. Eighty sizes in the line range from ⅛ to 15 in. in nominal inside diameter and from ½ to 16 in. outside.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10354

"Carryers" Mid-West Flow strike at costs missed by other handling means



Carryers are engineered to your job requirements, carefully suspending each part for protection of all critical surfaces. Contrasted to ordinary wire baskets, wood boxes, trays, or tote bins, Carryers become an integral part of your conveyor system. They convey parts through all processing stages as well as the cleaning cycle, eliminate non-productive labor time and costly scrap due to careless handling. Carryers do not become contaminated. Many have been in service 15 years. They will pay for themselves in 30 days on scrap savings alone. Carryer bins also available for bulk handling of non-critical parts.

this free brochure may help you.

MID-WEST

MID-WEST WIRE PRODUCTS CO., INC.
27 Years of Parts Handling Experience
2577 FENKELL • DETROIT 21, MICH.

If you write maker identify as IEN-10355

Packaging - Brush top can in sizes from 3/16 pint to one quart

Source: GEORGE ELLIS & SONS INC.
4040 N. American St., Dept. IEN, Philadelphia 40, Pa.

Economical

Products such as touch-up enamel, layout fluid, sealing dope, cements can be packaged in this new line of metal brush top cans. Four sizes range from $\frac{3}{16}$ pt. to 1 quart. The brush top includes a ring handle or a detachable wood handle as shown in the illustration. Lugs are soldered on opposite sides of the cap to assist in removing it from the can when a worker's hands are greasy. The brushes measure ½ and 1 in. in width. They are vulcanized in rubber and soldered to the cap so they cannot be lost.

If you write maker identify as IEN-10356

Metal Treating - Powder, solvent and rinse prepare metal for painting

Source: NEILSON CHEMICAL CO.
6564 Benson St., Dept. IEN, Detroit 7, Mich.

Form 54-122-F6

upon request

Phosteem trade names a new assembly of materials for spray application with a steam gun to clean metal surfaces and to phosphatize them to form a good base for paint. The new materials, and equipment with which they are applied, are particularly suited for use on work too bulky to handle through ordinary conveyor type washers and treating equipment. Machinery castings, large automotive stampings are examples of work that can be handled to advantage.

The cleaning and phosphatizing solution is made up of Phosteem powder No. 88 and solvent No. 88. An acidulated rinse, known as Rinseprep H, is applied following application of the solution. The work is then ready to receive its first coat of primer. The company is prepared to supply the steam handling equipment and, if necessary, additional equipment for steam generation at 100 to 120 pounds.

If you write maker identify as IEN-10357

Handi-Gage is a new magnetic instrument similar in size and shape to an automobile tire gage. The user applies the magnetic end, in approximate vertical position, to a ferrous plated object and slowly pulls the barrel away so a calibrated inner stem appears. The distance the stem travels, before the magnet releases itself from the surface, is a measure of the plating thickness. The gage can be used in connection with platings made of cadmium, copper, brass, lead nickel, silver, tin, zinc. Thickness ranges from 0.0001 to 0.015 inch. The gage is listed at $75 by its manufacturer, Platers Research Corp., 59 E. 4th St., Dept. IEN, New York 3, N. Y.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10358

"THOROUGH ELECTRICAL GROUNDING Pays Dividends in Service"*

VIBROGROUND

Makes Accurate Ground Testing Certain

● Whether your electrical grounding problems concern lightning protection, plant equipment or high tension lines—Vibroground ground resistance testing instruments are built to give you quick, accurate measurements that pay dividends in service.

Readings are unaffected by earth resistance or condition, stray frequencies, voltages or currents; and are independent of auxiliary probe resistances.

Write for details on Vibroground instruments and testing techniques today.

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Precision Instruments Since 1938

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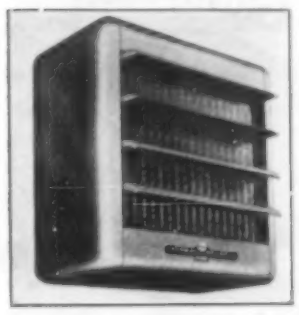
If you write maker identify as IEN - 10359

Heating - Horizontal space unit employs hot water or steam to 125 pounds

Source: AMERICAN AIR FILTER CO.
215 Central Ave., Dept. IEN, Louisville 8, Ky.



Bulletin 700-A5

Illustrated is a new space heater that has been designed so the final temperature of air leaving the unit is at a reasonable level, when high pressure high temperature steam is employed, so the heated air can be forced down to the floor to serve the space satisfactorily. The unit can be employed on steam lines operating at pressures to 125 pounds.

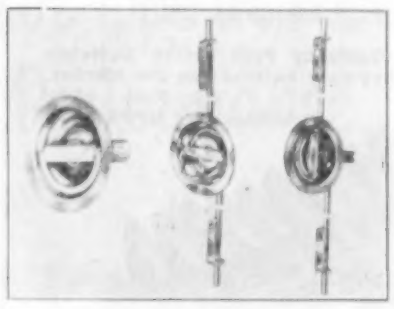
Capacities range from 385 to 5,430 cfm. based on 70-deg. air. Rating is 17,400 to 228,000 btu. per hour with 60-deg. entering air and 2-lb. steam pressure. Application can be made, without modification, in a heating line carrying hot water.

The circulating fan is driven by a single or two-speed enclosed motor. The unit housings are fitted with horizontal directional louvers. Vertical louvers can be specified. Housing dimensions are 15¼ to 31¼ in. in width by about 21¼ to 28¼ in. in overall depth including the motor, and 17⅜ to 35⅝ in. in height.

If you write maker identify as IEN - 10360

Lock - Flush handle design secures hinged door at 1 to 3 points

Source: A. L. HANSEN MFG. COMPANY
5051 Ravenswood Ave., Dept. IEN, Chicago 40, Ill.



Handle hinges in

Illustrated is new design of the company's flush handle lock, previously described IEN-7035-53, to secure a hinged door at one, two or three points. The one-point unit has a striker bolt that locks the door at the center. The two-point lock has two rods to lock the door at the top and bottom. The three-point lock is a combination of the other two units.

Two handle sizes measure 3¾ and 4½ in. in inside diameter, 4⅞ and 6 in. in outside diameter. Both are ½ in. in depth. The rods are provided in 30-in. lengths for the two and three-point locks. They can be cut to suit a given door. Weights range from about 1 to 3 pounds.

If you write maker identify as IEN - 10361

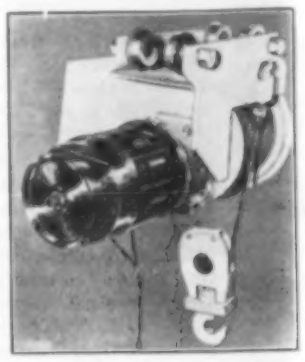
Silicone emulsion SM-70 is now being employed as a mold release agent in bottle manufacture. The material is sprayed into the molds, in which the bottles are blown, to form a coating that prevents hot bottles from sticking to the metal. There is no smoke or fire hazard. The emulsion does not burn or bake on the molds. General Electric Co., 101 Plastics Ave., Dept. IEN, Pittsfield, Mass., is the source for the emulsion.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10363

Hoist - Drum type electric, 4, 5, 6 ton, for lift to 35 feet

Source: R. G. LETOURNEAU INCORPORATED
Mobberly Ave., Dept. IEN, Longview, Texas



Push button control

Operation of this new hoist is based upon the company's squirrel cage induction motor that was initially developed for heavy duty operation on frequent starts and stops under full load. The motor connects to the drum by means of helical gears operating in oil. The gear shafts are mounted on anti-friction bearings. A bi-metallic friction cone brake engages on opening the motor circuit and releases when the circuit is closed in either direction. It stops and holds a rated load without slipping and provides instant operation so the load can be "inched" either up or down as required.

Minimum head room is 34 inches. Overall length is 46 in. and overall width is 21 in. in the three hoist ratings. Full load lift speed can be specified at 24 or 44 fpm. on the smallest unit. It is 24 or 28 fpm. on the largest one. The motor operates on 220/440-volt three-phase 60-cycle ac. Limit switches, based on rotation of the drum, can be set to stop the load hook at desired top and bottom positions. The assembly is available for suspension by lug, hook, plain or geared trolley. It is weather proof construction for use outdoors as well as inside.

If you write maker identify as IEN - 10364

Feeding - Reciprocating pump, packless design for proportioning duty

Source: HILLS-McCANNA COMPANY
3025 N. Western Ave., Dept. IEN, Chicago 18, Ill.

"The meter that pumps"

Packed glands and stuffing boxes have been eliminated from the sealed leak proof pumping element of this new Hills-McCanna-Meter, as the company's new proportioning pump is known. The unit will meter quantities from 5 cc. to 6 gph. depending on the fluid being handled. Quantities as low as 3 cc. can be delivered in an hour with reproductible consistency. Standard speed ranges from 27 to 900 strokes per minute. Pressure is to 2,500 pounds. Gases and vapors are vented in the pumping action. The valves are high speed design to provide positive seating and self-cleaning action.

Automatic control can employ a direct instrument air signal. The pump can be used singly or in gangs in an arrangement in which additional units are connected to the basic unit so additional motors or speed reducers are not required. In the ganged arrangement, link adjustment can be employed so individual feeds are altered simultaneously and identically.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10366

AIM for preset tension on your steel strapping

Acme Steel offers the only complete line of PNEUMATIC STRETCHERS

These new time-saving Acme Steel Strapping Tools can be set in advance for uniform, consistent tension. There's no guesswork. The Pneumatic Stretchers do the work—reducing employee fatigue. There are Acme Steel Pneumatic Stretchers for tensioning strapping on all sizes and shapes of containers, packages and bundles . . . and a model to suit your needs. For details, write Acme Steel Products Division, Dept. KL-94, Acme Steel Company, 2840 Archer Avenue, Chicago 4, Illinois.

AIM *for Safe, Lower-Cost Shipping* ACME STEEL

If you write maker identify as IEN - 10367

PROBLEM: Reduce manufacturing costs and waste in fabrication of electrical contact Spring Clips

SOLUTION: General Plate provided the solution with long continuous length coils of coin silver clad to phosphor bronze . . . a Composite Metal

A manufacturer of television tuners required a contact material for use in the fabrication of narrow and thin contact spring clips. Extremely close tolerances and long continuous lengths were prerequisites.

The problem was presented to General Plate who quickly found the solution with coin silver-clad to phosphor bronze and provided the material in coils up to 20 inches diameter of a single continuous length. This saved the manufacturer many dollars by eliminating idle machine time and reducing waste practically to zero. The coin silver gave a non-porous, long wearing contact surface — the phosphor bronze excellent spring qualities.

You, too, can benefit with General Plate raw stock contact materials. They are available in various combinations, single or double inlay, overlay, single or double edge-lay and Top-Lay. General Plate Composite Contact Materials will save you money and enable you to make contact assemblies superior to those produced by other methods.

In addition to raw stock, General Plate fabricates contacts and complete contact assemblies.

You can profit by using General Plate Composite Metals

METALS & CONTROLS CORPORATION
GENERAL PLATE DIVISION
79 FOREST ST., ATTLEBORO, MASS.

If you write maker identify as IEN - 10362

GET THE FACTS ABOUT CARBON

Many design engineers have cracked some mighty tough problems through the use of carbon parts in machine design. Years of study have revealed properties inherent in carbon which, when applied to industrial machines, simplify design, reduce maintenance costs, and add life to vital equipment.

Write Today For

Morganite Design Data Reference—describes advantages, lists chemical and physical properties, gives hints on design. No obligation.

Morganite INCORPORATED
3316 48th Avenue, Long Island City 1, N. Y.

If you write maker identify as IEN - 10365

MET-L-WOOD METAL BONDED TO PLYWOOD

Has Hundreds of Structural Uses in Modern Plants

To Name a Few:

- Walls and Partitions
- Doors
- Counters and Shelves
- Traffic Panels
- Truck Bodies (Patented "Ribless" Construction)
- Truck Body Panels
- X-Ray Rooms
- Moisture-Vapor-Proof Rooms and Containers
- Decorative Finishes

Met-L-Wood stock panels and prefabricated units are a challenge to modern industrial engineers and designers because of their multiple possibilities in economical, structurally-sound designs in hundreds of varied uses. Best start toward thinking in terms of Met-L-Wood design opportunities is to send for the Bulletin described below . . . Met-L-Wood Engineering Service is available without obligation on specific problems.

SEND FOR THIS BULLETIN ON MET-L-WOOD USES AND ADVANTAGES

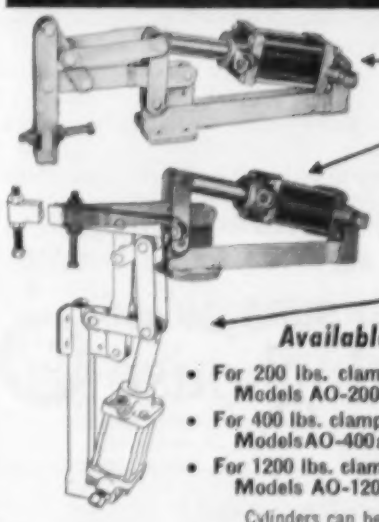
Quick facts, with illustrations and diagrams on Met-L-Wood applications, types, possibilities. Sent without obligation on request.

Met-L-Wood is metal bonded to plywood—permanently. Many metals, woods, thicknesses, shapes, finishes are available to meet YOUR requirements.

MET-L-WOOD CORPORATION
6755 West 65th Street • Chicago 38, Illinois
"Met-L-Wood . . . opening new horizons to structural designers"

If you write maker identify as IEN - 10368

HAVE YOU HEARD ABOUT AIR-OPERATED TOGGLE CLAMPS to step up your clamping operations?



Knu-Vise (AODT-400) Double-toggle Clamp to clamp "around the corner"

Knu-Vise (AO-400) Toggle Clamp for conventional clamping.

In cases where the cylinder interferes with conventional clamping, the Double-Toggle Clamp shown at the top serves such difficult mounting situations as illustrated in the superimposed line drawing.

Available in 3 series

- For 200 lbs. clamping force Models AO-200 and AODT-200
- For 400 lbs. clamping force Models AO-400 and AODT-400 (illustrated)
- For 1200 lbs. clamping force Models AO-1200 and AODT-1200

Cylinders can be easily rotated to suit air supply from either left or right side.

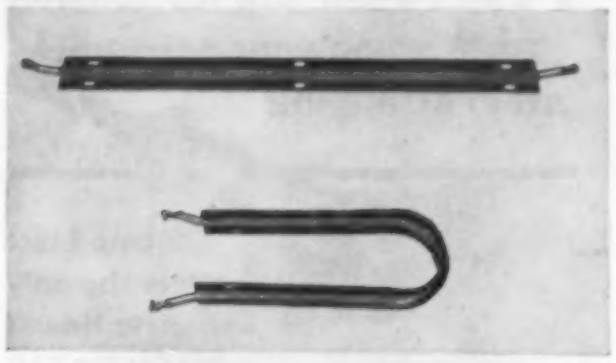
Send for complete information.

KNU-VISE PRODUCTS LAPEER MFG. CO.
3060 DAVISON ROAD • LAPEER, MICHIGAN

WESTERN DIVISION — 422 MAGNOLIA • GLENDALE, CALIF.
CANADIAN DIV. — HIGGINSON ENGR. • HAMILTON, ONT.

If you write maker identify as IEN-10369

New Vane-type Calrod* Heater



For heating flat and circular surfaces

The G-E Vane-type Calrod heater is *formable* and can be cupped for heating circular surfaces.

The sturdy Calrod unit in this heater is bonded to a wide 1¾-inch radiating surface and is available in lengths from 20 to 100 inches. Fast, even heat transfer to the vane is provided by a strong, copper-brazed joint which runs the full length of the heater.

FREE APPLICATION BULLETIN

G.E. offers a new "Handy Selector Guide for Surface Heating." For your copy write today for GEA-6146, Section 720-140, General Electric Company, Schenectady 5, N. Y.

*Reg. Trade-mark of the General Electric Company

GENERAL ELECTRIC

If you write maker identify as IEN-10370

New 40-page book

TO HELP YOU PLAN CIRCUIT PROTECTION

Westinghouse Circuit Breaker Protection is *modern* circuit protection, for three reasons. (1) Westinghouse Breakers stop needless production down time, because they do not trip on temporary or harmless overloads. (2) Westinghouse Breakers are designed to be foolproof . . . safe, tamperproof, maintenance free. (3) Westinghouse Breakers are versatile . . . there is a standard or a special breaker for every conceivable industrial, commercial or residential requirement.

Get this free booklet to help you plan circuit protection right. Write for B-6145, Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

J-30177

YOU CAN BE SURE...IF IT'S **Westinghouse**

Westinghouse Electric Corporation
3 Gateway Center, Pittsburgh 30, Pa.

Please send me Circuit Breaker booklet, B-6145.

Name_____

Company_____

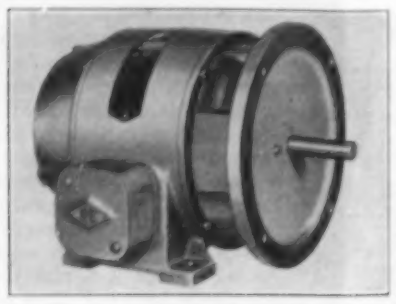
Address_____

City_____ State_____

If you write maker identify as IEN-10372

Motor - Stall type torque design for holding duty as well as to drive

Source: REULAND ELECTRIC CO.
Westminster & W. Mission, Alhambra, Calif.



For specified duty

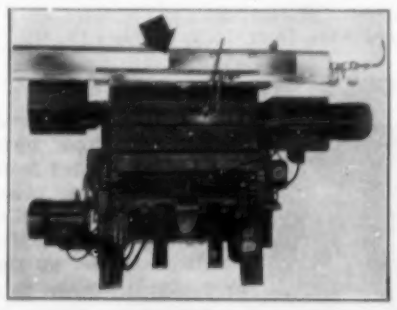
Standard assemblies rate 0.5 to 10 ft. lb. in across-the-line locked duty, at 5 to 100 per cent, in this recently improved line of torque motors. Each is horizontal design, drip proof ball bearing construction in plain assembly or with right angle worm or helical gear reducers. Operation is on 2 and 3-phase 25 to 60-cycle 110 to 550-volt ac.

Typical applications include winding film or wire on spools, closing electrical contactors and holding them closed, similar duty on valves, locking devices, brakes, lifting devices, cams, door operators, machine tools, pumps. The illustration shows a typical unit in the line, rating 3 ft. lb. in a No. 225 frame. It is 10-pole construction for 50 per cent locked duty. This motor can be locked or operated approximately 50 per cent of the time and can be locked across-the-line for an hour continuously without damage to the motor.

If you write maker identify as IEN-10373

Polishing - Compound dispenser for use on wide roll buffing machines

Source: CLAIR MFG. COMPANY
1002 S. Union St., Dept. IEN, Olean, N. Y.



Patent 2,677,219

Spray Gun Mover is a new air driven hydraulically operated device to apply surface finishing compound to wide face buffing rolls. The unit completes one spray pass each time the operator depresses a foot control. It is available in a range of sizes for width coverage of 2 to 40 inches.

A single gun covers the full width and delivers the compound by means of a supply of clean dry oil free air. The assembly includes a frame, a bearing mounted carriage, a pneumatic motor, a rack and pinion drive, an adjustable cam actuated traveling air valve to which the spray nozzle is secured and electrical control equipment in a dust proof enclosure. The device is shown mounted on one of the company's wide roll buffing machines.

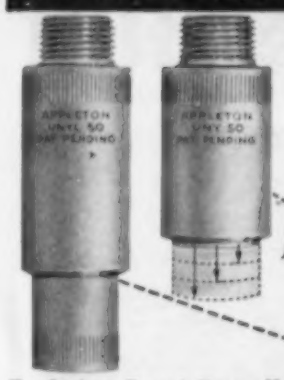
If you write maker identify as IEN-10374

A new kit containing the required equipment and accessories to weld thermoplastic materials together, with instruction booklets on the subject, is now available from American Agile Corp., Box 168, Dept. IEN, Bedford, Ohio.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10375

NEW! Self-Adjusting, Explosion-Proof



EXPANSION UNIONS by APPLETON

Explosion-Proof Regardless of Position . . . Only One Unit . . . Two Moving Parts! Expansion adjustment is built-in! The *two* moving parts telescope or expand to accommodate usual thread lengths. Only *two* tightening operations . . . each made separately! Smaller external diameters for convenient use in restricted quarters! Precision construction . . . the union remains completely explosion-proof at all times, regardless of its retracted or extended position! Special design guarantees positive ground at all times! Write for details!

EXTRA LONG UNYL Union showing up to 1-31/32" expansion . . . serves the purpose of two conventional type unions!

STANDARD UNY Union showing up to 21/32" expansion . . . for installation wherever conventional types were previously used!

Sold Exclusively Through Selected Wholesalers

APPLETON ELECTRIC COMPANY
1716 WELLINGTON AVENUE • CHICAGO 13, ILLINOIS

Rely on **APPLETON** *. . . The Standard for Better Wiring*

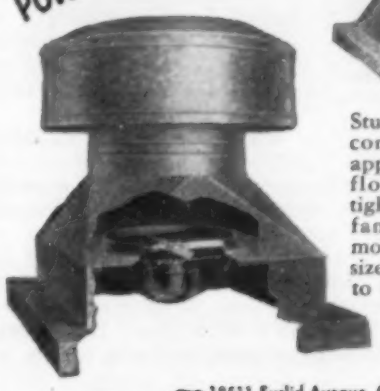
If you write maker identify as IEN-10376

Moderate priced VALVENT Roof Ventilators fill many needs

In hundreds of places — for "hot spots" in large or small buildings — the VALVENT fills the need for a simple economical roof ventilator.

Gravity Model

Powered Model



Sturdy galvanized steel construction; pleasing appearance; efficient airflow design, weathertight. Unusually effective fan unit in powered models. Wide selection of sizes and capacities. Bases to fit any roof type.

Write for full information on VALVENT Ventilators

18511 Euclid Avenue, Cleveland 12, Ohio

The Swartwout Co.

Roof Ventilators and Ventilating Louvers

POWER PLANT EQUIPMENT • PROCESS INDUSTRY CONTROLS

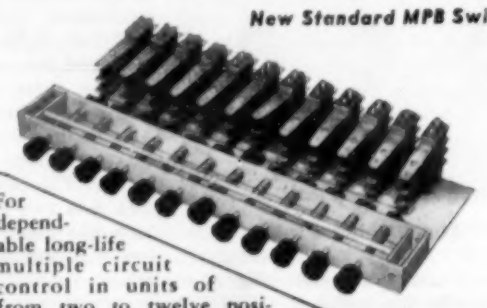
If you write maker identify as IEN-10377

GENERAL CONTROL SWITCHES

MULTIPLE PUSH BUTTON SWITCHES

General Control Company Push Button Switches were the first heavy-duty switches on the market.

New Standard MPB Switch



For dependable long-life multiple circuit control in units of from two to twelve positions. Currently in production on new 5 amp. extruded frame type with the following operations: No Two Interlock; Lock Release; and Non-Lock. Where depth-behind-panel space is limited, a right-angle MPB switch can be supplied. The standard switch can be stacked or intercoupled providing all of the features of a single switch. A variety of contact forms may be used in each position.

SPECIAL SWITCHES CAN BE MADE TO YOUR PANEL REQUIREMENTS.

Write for Bulletin IN-300

GENERAL CONTROL COMPANY
1200 Soldiers Field Road (Est. 1934) Boston 34, Mass.

If you write maker identify as IEN-10378

FREE...

BULLETIN 161

2 BULLETINS on SHORT RUN STAMPINGS

BULLETIN 101

FOR... DESIGNERS
METHODS ENGINEERS
PROCESS ENGINEERS
PRODUCT ENGINEERS
MECHANICAL ENGINEERS
RESEARCH ENGINEERS
SUPERINTENDENTS
PURCHASING AGENTS

SEND FOR THESE HELPFUL BULLETINS TODAY

SERVICES BULLETIN NO. 161 describes the facilities that make Federal a *one-stop* stamping service. Specifications cover special die stamped wrenches, nameplates, and quality short run stampings from any stampable material.

COSTS BULLETIN NO. 101 shows how Federal's special dies give the accuracy, exact duplication, and tolerances of permanent dies *plus* saving as much as 80% on die costs.

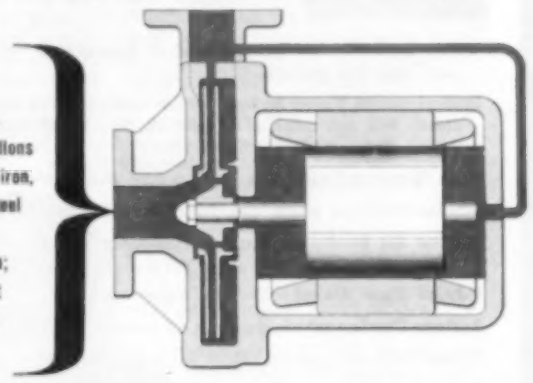
Federal TOOL AND MANUFACTURING CO.
3612 ALABAMA AVE. (ST. LOUIS PARK)
MINNEAPOLIS, MINNESOTA
"QUALITY STAMPINGS IN SMALL QUANTITIES"

If you write maker identify as IEN - 10379

Chempump

THE PUMP THAT CAN'T POSSIBLY LEAK

...no mechanical seals...no stuffing box



¼ to 3 horsepower, 0 to 180 gallons per minute; iron, stainless steel or monel construction; prices start at $96.00.

Think of what this means when handling toxic, corrosive or expensive process fluids. Chempump, with its magnetically-driven enclosed rotor can work—and save—for you, too. It is performance-proved in over 6 years of field experience. Write for complete data.

CHEMPUMP CORPORATION
1302 EAST MERMAID LANE • PHILA. 18, PA.

If you write maker identify as IEN - 10380

For Tops in Pipe Wrench Performance... it's the Genuine RIDGID

...with the guaranteed trouble-free housing!

Only the RIDGID has a world-wide rep as the finest pipe wrench made. Only RIDGID has earned and maintains this rep by building toughness and smart performance into these overwhelmingly popular wrenches, checking them part by part and *hard work testing every last one* before shipment. When you buy a RIDGID, you know the housing won't break, the jaws won't slip or lock, the adjusting nut spins easily to all sizes, 6" to 60". Always most for your money—ask your Supply House.

Have you tried the new RIDGID Spud Wrench?

Deep narrow jaws for close work—break-proof housing—famous RIDGID jaw suspension—comfort-grip I-beam handle. Ask your Supply House.

THE RIDGE TOOL COMPANY, ELYRIA, OHIO, U.S.A.

RIDGID
Work-Saver Pipe Tools

If you write maker identify as IEN - 10382

Communicating - Handset stations and reproducer for talk and paging

Source: EXECUTONE INCORPORATED
415 Lexington Ave., Dept. IEN, New York 17, N. Y.

Handles emergencies quickly

Plant paging is combined with two-way communication in this new design of handset stations for wall or desk mounting and loudspeaker reproducer. Pressing a button on any of the stations in the installation and speaking into the handset results in amplifying the voice on all of the reproducers. The person paged, upon hearing the call, goes to the nearest station, picks up the handset and is automatically put into two-way voice contact with the individual who paged him.

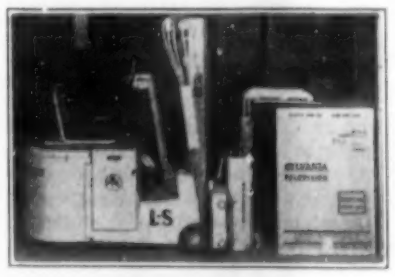
Several individuals can talk with each other over the handsets independent of the paging action. Time signals, fire and emergency alarms, emergency paging can be made to override a conversation. Monitoring facilities are provided also.

The equipment includes a relay controlled amplifier and electronic components for paging and communicating located in a control rack measuring about 23 by 17 by 67 inches. The reproducer measures 21 in. in length by 20 in. in diameter and is provided with an adjustable bracket for wall, ceiling or column mounting. Explosion proof units are available. The desk type handset station is assembled in a die cast metal housing. Incoming paged messages are reproduced through the speaker grill on this station. Overall dimensions are about 9 by 12 by 8 inches. The wall mounted station is equipped with a paging button and a "busy" signal. This unit measures about 6 by 3 by 9 inches.

If you write maker identify as IEN - 10383

Truck - Clamping attachment grips carton from top, shifts laterally

Source: LEWIS-SHEPARD
125 Walnut St., Dept. IEN, Watertown 72, Mass.



On a Model-J truck

The foot plate at the bottom of this new hydraulic load carrying attachment, for the company's electric fork truck, is moved beneath a loaded carton by operating the truck. A valve is then operated to bring a top clamping plate down so the carton is firmly held and can be lifted and carried or removed from a stack.

The mechanism shifts laterally, 4 in. to either side of center, without moving the truck laterally so the truck need not be exactly positioned to place a carton. A safety interlock prevents clamping unless the carton is in correct position to grip and lift. Both clamping and shifting movements are controlled at the operator's position.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10384

New RODGERS "Double Duty" PLATEN PRESS

New Rodgers Platen Press, 300 tons, 72"x48" electrically heated platens, with automatic controls, designed for molding and bonding sheet plastic to other materials. May be quickly converted to other operations.

1 forms or draws metals **2 molds and bonds plastics in ONE operating cycle**

Are you processing both metals and plastics? This newest Rodgers Platen Press is quickly converted for metal or plastic operations—a "double feature" advantage that means equipment savings for you.

Heated platens, which mold sheet plastic *and* simultaneously bond it to metal, rubber or other materials, are interchangeable with metal forming or drawing dies. By using pneumatic die cushions, the press can be converted for deep drawing of metals.

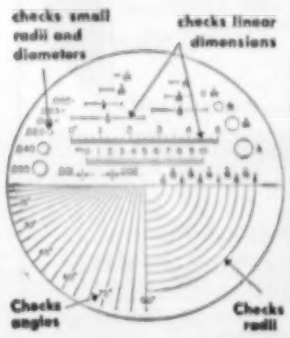
Rodgers "Double Duty" Presses are available in 10 to 500-ton capacities and with platen sizes from 12"x12" to 72"x48". Precision control equipment automatically governs platen movement, pressure, time cycles and temperature. Operator safety is assured by design.

MANUFACTURERS. Let us send you catalog describing Rodgers "Blue Ribbon" Presses for plastic and rubber molding, metal drawing and metal forming.

Rodgers Hydraulic Inc.
7437 Walker St. • Minneapolis 16, Minn.

If you write maker identify as IEN - 10385

THE Original BELL & HOWELL Pocket Comparator



Saves time and money inspecting small dimensions

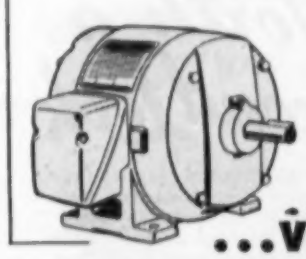
● Here's *guaranteed* accuracy in checking small dimensions at a price any business can easily afford. Save time and money measuring wear on cutting tools, checking forms and dimensions of punches, dies and gauges—as well as chamfers, threads and small holes on production parts.

Thousands in use by America's leading precision manufacturers. It's the greatest time-saver since the micrometer!

price only **$36.00** order today

A product of BELL & HOWELL CO. Distributed by
See Your National Tool Co. Representative or Local Jobber
NATIONAL TOOL CO.
11220 Madison Avenue Cleveland 2, Ohio
Write for FREE descriptive folder

If you write maker identify as IEN - 10386



NEW GE TRI 55 CLAD MOTOR ...via Graybar

Here's the *all new* GE Tri-Clad "55" . . . and it's available via Graybar. A new insulation system . . . new bearing system . . . new ventilation system makes the Tri-Clad "55" a leader in modern motor design. Now available in 1, 1½ and 2 hp ratings—to order, just call your local Graybar Representative.

FREE 16-page booklet describes features

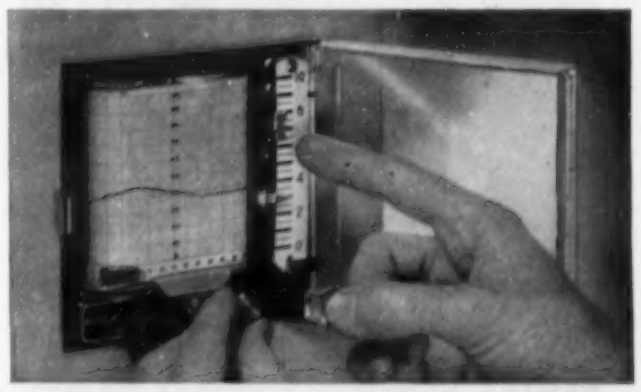
Send for your copy, today—see for yourself how the TRI-CLAD "55" offers you better performance, easier installation, less maintenance. Booklet also gives complete breakdown of new smaller motor dimensions. *Graybar Electric Co., Inc., 420 Lexington Ave., New York 17, N. Y.*

Call Graybar *first* for . . . Everything Electrical GraybaR ELECTRIC COMPANY

422-129

If you write maker identify as IEN - 10387

WHAT'S NEW AT BRISTOL...



Instrument men call Bristol's new METAGRAPHIC Recorder "...the biggest little instrument"

• Designed with the operator foremost in mind, the air-operated "human-engineered" Bristol METAGRAPHICS are easy to read, with numerals and calibrations sharply defined for maximum visibility.

The METAGRAPHIC's continuous valve-position indication, which is separate from the set-point indication, gives continuous data on control valve position and level of process operation. No switching is necessary to get reading.

Write us today for the whole story on the "human-engineered" METAGRAPHICS. The Bristol Company, 107 Bristol Road, Waterbury 20, Conn.

BRISTOL Points the way in human-engineered instrumentation

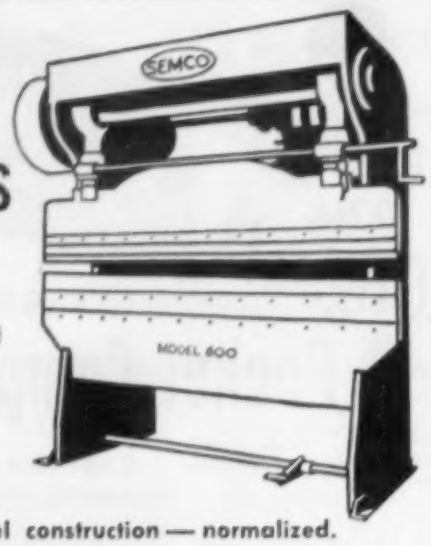
AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

If you write maker identify as IEN-10388

NEW PRESS BRAKES

In four sizes 6', 8', 10' and 12' 30 to 60 ton.

• LOW PRICED • BIG PRESS FEATURES



- All steel construction — normalized.
- Ball and Roller Bearings throughout.
- Fine adjustment of ram.
- Heavy pitmans with buttress threads.

Made by the makers of famous SEMCO "35 YEAR" BRAKE DIES.

Write for NEW color folder and prices of PRESS BRAKES and 26 standard BRAKE DIE designs. Send die specifications for estimate.

SEMCO

SERVICE MACHINE CO., INC.

200 Miller Street • Elizabeth 4, N. J.

If you write maker identify as IEN-10389

Worth a Second Look

Since '26 JOY electrical plugs and receptacles have been Industry's outstanding value for portable power transmission. Molded as trim, one-piece (Neoprene/rubber) units they can't crack or shatter . . . won't lose their shape and are amazingly resistant to falls, blows, acids, oils, moisture or sunlight. Thousands of styles and shapes ranging from "cartridge-size" models to mammoth round (S.P.B.) units used in marine and mining applications have been developed. NO question about it . . . the JOY electrical connector line deserves a "second look". Ask for your free copy of Bulletin MC108

M.E. 651.1

ILLUSTRATION SHOWS JOY ROUND STYLE PORTABLE PLUGS

OVER 100 YEARS ENGINEERING LEADERSHIP

JOY MANUFACTURING COMPANY

HENRY W. OLIVER BUILDING, PITTSBURGH 22, PENNSYLVANIA

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LTD., GALT, ONTARIO

If you write maker identify as IEN-10390

CUTS DOWN WATER COSTS *as much as 60%*

DEMING VERTICAL TURBINE PUMP

The problem of high costs of factory water supply has been solved by many plants through the installation of Deming Vertical Turbine Pumps. In areas of high rates for central station service, savings up to 60% have been made by Deming Turbine Pumps. In areas beyond city water mains, these dependable pumping units keep water costs at a minimum due to outstanding features of construction and low cost maintenance.

Send for BULLETIN 4700-51

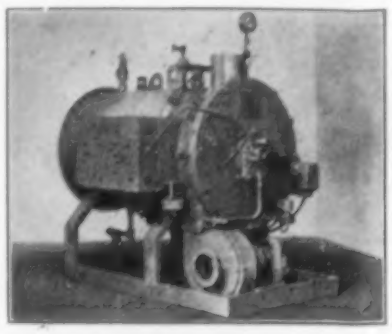
This FREE, illustrated bulletin gives you important facts about the features and advantages of Deming Vertical Turbine Pumps.

THE DEMING CO.
521 BROADWAY
SALEM, OHIO

If you write maker identify as IEN-10391

Boiler - Self-contained design 15 to 60 hp., operates on oil or gas

Source: AMES IRON WORKS
Dept. IEN, Oswego, N. Y.



Bulletin TP-1

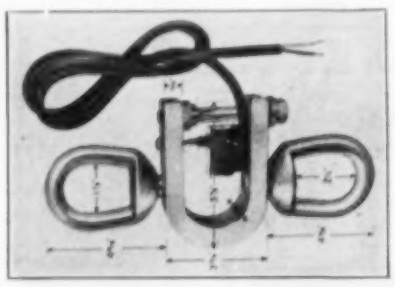
Model TP designates seven new sizes of "pocket-size" self-contained boiler in the company's Amesteam line. The smallest unit measures 67 in. in length, 28 in. in base width, 46 in. in height. The largest, 60-hp. unit, measures 102 by 44 by 59 inches. Recommended stack diameter is 6 to 10 inches. Working pressure ranges from 15 to 200 pounds. The boiler supplies a source for steam or hot water. It is ready for connection into the user's service lines.

Construction is in accordance with ASME and National Electrical Codes. Each boiler carries Underwriters' Laboratories label. The boiler is built-in modified scotch design. The burner fires into a plain cylindrical chamber with ends welded into the tube sheets. The burner operates full on until steam demand is satisfied and then it turns off.

If you write maker identify as IEN-10392

Switch - Tension operated, protects hoist against overload damage

Source: W. C. DILLON & COMPANY
14620 Keswick St., Dept. IEN, Van Nuys, Calif.



For safe loading

Illustrated is new design of the Dyna-Switch, previously described IEN-1065-47, to protect a crane, hoist or winch against damage due to overloading. Operating range is from 500 to 10,000 lb. on accuracy within 0.5 per cent. Accidental overload, to 35,000 lb., can be imposed without injury to the new assembly.

New features in the design include a free-riding stop bolt at the open end of the U-shaped bar to permit deflection equivalent to a pull of only 11,000 pounds. The two pulling eyes are welded in place to resist twisting action of a heavy suspended load. The switch unit is a standard sensitive push-button design with standard control circuit rating.

If you write maker identify as IEN-10393

Pre-Namel 420 trade names a new product to treat aluminum in order to provide adhesion for porcelain enamel. The treatment centers in a bath, controlled by simple tests, to apply a chemical coating prior to application of the enamel. Parker Rust Proof Co., 2177 E. Milwaukee Ave., Dept. IEN, Detroit 11, Mich., can supply details.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10394

SOLVE UP TO 9 FLOOR PROBLEMS

★ *Economically!*
★ *Easily!*
★ *Speedily!*

SCRUBBING
WAXING
POLISHING
SHAMPOOING
DRY CLEANING
GRINDING
SANDING
BUFFING
TROWELING

MULTI-CLEAN 9-Job Floor Scrubbing Machine

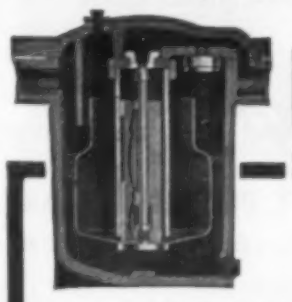
ENTHUSIASTIC USERS throughout the nation's institutions and businesses praise the Multi-Clean 9-Job Floor Scrubbing Machine. Because it's *money saving* . . . handles so many jobs for the cost of one machine. Because it's *labor saving* . . . ease of handling makes it a favorite with floor maintenance men everywhere. Because it's *time saving* . . . top efficiency cuts working time by hours. Available in five heavy-duty sizes to solve your particular floor problems.

Solution flow and motor controls at your fingertips. Easy-fill tank won't spill when tilted. Write for more information on the many outstanding long-life features found only under the Multi-Clean label.

MULTI-CLEAN®

2277 Ford Parkway — Dept. IE-8 — St. Paul 1, Minn.

If you write maker identify as IEN-10395



illinois STEAM TRAP

Simple—has only two moving parts

Valve Stem Travels Independent of Bucket—no other trap has this feature.

Instantaneous Valve Action—either wide open or tight shut—will not dribble on partial closing of valve under slow condensation rates.

Wire Drawing Impossible—valve has snap action.

Simple—moving parts are valve and bucket.

Cannot Air Bind—vents air continuously without loss of steam.

Cannot Blow Steam—always water sealed.

Surface Discharge—flushes out all grease and sludge.

Valve Seat—of special alloy, fully guaranteed.

Inspection Easy—without disturbing piping.

Works Equally Well on All Fluids—compressed air lines, air separators, air aftercoolers.

Write for Bulletin 35

Consult us on your requirements

illinois ENGINEERING — ILLINOIS ENGINEERING COMPANY
2035 SOUTH RACINE AVENUE, CHICAGO 8
DIVISION OF AMERICAN AIR FILTER COMPANY, INC.

If you write maker identify as IEN-10396

ATTENTION: ELECTRIC TRUCK USERS

CHARGE BOTH EDISON AND LEAD-ACID BATTERIES WITH ONE MULTI-PURPOSE CHARGER

THE *NEW* HERTNER Model UX-2 MULTI-PURPOSE CHARGER simplifies charging problems and reduces costs. It permits standardization in charger facilities. Now it is possible to replace specific-purpose chargers with fewer Multi-Purpose Chargers. This charger can be converted quickly and easily from charging Edison batteries to lead-acid batteries, and back again. Ease of conversion also applies to changing from one size of battery to another—both lead-acid and Edison types. All of the latest features of automatic control and protective devices are found in this newest Charg-O-Matic unit.

For full details and specifications write for Bulletin 210

IMMEDIATE DELIVERY

LOOK TO HERTNER FOR THE LATEST IN BATTERY CHARGERS

THE HERTNER ELECTRIC COMPANY
12690 ELMWOOD AVENUE . . . CLEVELAND 11, OHIO
A General Precision Equipment Corporation Subsidiary
MOTORS • MOTOR GENERATORS • GENERATOR SETS

If you write maker identify as IEN-10397

PROFITABLE PRODUCTIVE ECONOMICAL

THE SUREWELD® PORTABLE D-C WELDER

The Sureweld Gas Driven D-C Welder is small enough, portable enough to go wherever the operator can go. And that's why it's so profitable, productive, economical. Delays, expenses, interruptions normally a part of on-the-job welding are eliminated. More time is spent welding. More welding is done. And the savings are usually enough to repay its cost in a few short weeks. Its capacity is ample for 85-90% of on-the-job welding. We'll be glad to demonstrate in your shop what owners say is the most useful welder they ever had. Or to send a copy of bulletin NH-121. Write today.

Copyright 1953, National Cylinder Gas Company

NCG® National Cylinder Gas Company
840 N. Michigan Ave., Chicago 11, Illinois

If you write maker identify as IEN-10398

Variac® SMOOTH VOLTAGE CONTROL

The most popular of the many models of the VARIAC® continuously-adjustable autotransformer is the Type V-5MT. With a power rating of 860 va, it will control a maximum of 7.5 amperes over a 0 to *115*-volt output range, or a maximum of 5 amperes when connected to supply output voltages from 0 to *135* volts, both from 115-volt a-c lines.

As are all "V" models, the Type V-5MT has DURATRAK brush track construction . . . exclusive with G-R . . . which insures extra-long life, ability to withstand initial surges ten times the rated current, and very low maintenance.

This popular unit is equipped with 6-foot line cord, line switch and convenience outlet. For general experimental and laboratory use the Type V-5MT, priced at $25.00, has found universal acceptance.

Let us tell you about G-R's complete line of VARIAC autotransformers.

Write for the VARIAC® BULLETIN.

GENERAL RADIO Company 275 Massachusetts Ave., Cambridge 39, Mass.
90 West St. NEW YORK 6 · 8055 13th St., Silver Spring, Md. WASHINGTON, D.C.
920 South Michigan Ave. CHICAGO 5 · 1000 North Seward St. LOS ANGELES 38

If you write maker identify as IEN-10399

Overhead work's a SNAP! with the NEW Ladscaf SCAFFOLDING

PLACE IT!

SNAP IT!

No Bolting with Ladscaf 'LOCK-ON' CLAMPS

It's a snap to erect Ladscaf with these new positive-action clamps. Will not disengage until trigger is released.

UP FASTER

Quickly clamps together to build better scaffold faster. Ladder rungs are spaced just a foot apart.

SWIVEL ACTION

Stabilizers swivel back to move scaffold easily thru narrow aisles.

UP STAIRS

Ladscaf 'climbs' stairs easily—reduces blocking to a minimum. 2-foot wide panels permit convenient passage around scaffold.

Write for informative, New Ladscaf Bulletin IE-9.

IT'S A SNAP TO SAVE

Call on Universal's layout and planning service to help you

on all Maintenance Painting and Decorating Problems

UNIVERSAL SCAFFOLDING

Ladscaf low-cost, welded steel ladder panels, eliminate bolting—are quickly erected with exclusive snap-on' clamps. Easily fits in confined areas—can be rolled on casters—and extended to straddle machinery.

Combine New Ladscaf with famous Universal Ezebilt steel-panels and Endlok pipe-and-clamp for difficult and unusual scaffolding jobs.

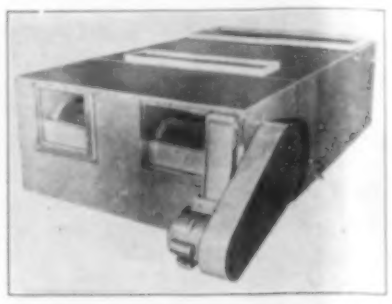
UNIVERSAL MANUFACTURING CORP. ZELIENOPLE, PA.

Distributors offer fast help and service. Consult your classified phone directory

If you write maker identify as IEN-10401

Heating - Coil type space unit also circulates and humidifies the air

Source: AMERICAN AIR FILTER CO.
215 Central Ave., Dept. IEN, Louisville 8, Ky.



Bulletin upon request

Capacities range from 1,200 to 15,000 cfm. with heat rating at about 59,000 to 1,121,000 btu. per hr. for the new Herman Nelson line of heating and ventilating units. Models are available for installation on the floor, ceiling or a wall. Individual sections permit selection of assemblies to heat, ventilate, filter and humidify a given amount of space.

The motor driven centrifugal fans are double-inlet double-width design with forward curved vanes. The heating coils, to employ either steam or hot water, are made of seamless copper tubing hydraulically expanded into aluminum fins. Steam coils are rated for pressure to 200 lb. and temperature to 400 deg. F. The hot water coils are return bend type and have supply and return connections at the same end. All coils are pitched for complete drainage. The assembly is in 8 and 12-gage steel frames with 16-gage steel panels.

If you write maker identify as IEN-10402

Cleaning - Water separator tank applies with standard vacuum machine

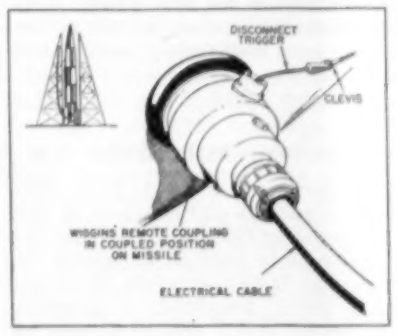
Source: HILD FLOOR MACHINE CO.
740 W. Washington Blvd., Dept. IEN, Chicago 6, Ill.

Please note our error

We should have quoted capacity at 15 rather than 25 gal. in connection with our description of the new water separator tank in IEN-8172-54. We also should have named 25 gal. as the combined wet pick-up capacity of the new Add-A-Tank and the Hild Model 115 portable vacuum machine.

If you write maker identify as IEN-10403

New connection, to apply between a missile and the electrical cable running to it for the start of an ascent, has been developed by E. B. Wiggins Oil Tool Co., 3424 E. Olympic Blvd., Dept. IEN, Los Angeles 23, Calif. The coupling is released by "tugging" the lanyard which in turn releases a spring loaded ejector for positive disconnection of the electric circuits. The coupling can be dropped without injury to the socket or working parts, due to its rubber bumper ring, when the missile starts its ascent and disconnection is effected.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10404

BRAND NEW VERTICAL-HORIZONTAL-BASE DE-STA-CO TOGGLE CLAMP

with low silhouette the fixture-hugger that makes it far easier to insert and remove work . . .

and complete clearance of working area due to flop-over holding bar—ideal for positioning metal or plastic sheets!

Send for FREE CATALOG on the new DE-STA-CO Models 507 and 509

DE-STA-CO DETROIT STAMPING COMPANY
World's FIRST Line of TOGGLE CLAMPS
342 Midland Avenue • Detroit 3, Michigan

If you write maker identify as IEN-10405

Spindles like These GIVE YOU PRECISION AND PROFIT FROM YOUR GRINDERS!

Select yours from *hundreds* of Ex-Cell-O precision grinding spindles—all standard models. For years they've been the original equipment choice of leading grinder manufacturers. There's *full information* in the 80-page Ex-Cell-O Spindle Catalog. Write us to send it!

54-9

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

If you write maker identify as IEN-10406

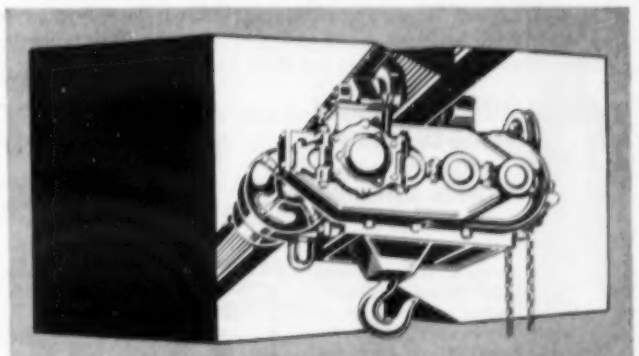
"Maverick" usually spells trouble, to the production line as well as the open range. An unknown quantity, its performance and quality are questionable. For all solder products, there's never any doubt when you choose Kester . . . the one "brand" that's always consistent, always dependable.

WRITE TODAY for Kester's *NEW* 78-Page Informative Textbook, "SOLDER . . its fundamentals and usage"

KESTER

SOLDER COMPANY
4211 Wrightwood Avenue • Chicago 39, Illinois
Newark 5, New Jersey • Brantford, Canada

If you write maker identify as IEN-10407



NORTHERN HI-LIFT Heavy Duty Hoists

Precision built for dependable, general purpose, heavy duty service. Capacities from 2 to 15 tons in standard I-beam, monorail, lug suspension or base mounted types. Bulletin H-112.

NORTHERN ENGINEERING WORKS
210 CHENE ST., DETROIT 7, MICH.

If you write maker identify as IEN-10408

NO matter what your float needs are, you can meet them from Chicago Float's complete line. Where pressure and temperature requirements are critical you can satisfy them with long wearing, dependable stainless steel floats which are built to withstand pressures to 1000 lbs. and temperatures to 800° F.

A complete line of standard seamless copper floats is available for low temperature and pressure services. In addition, you can get floats in brass, monel, steel or nickel for certain specific requirements. A wide variety of standard shapes, sizes and spud connections are offered. Special floats made to order.

SEND FOR YOUR COPY OF COMPLETE CATALOG CONTAINING ALL VITAL INFORMATION ON FLOATS

CHICAGO FLOAT WORKS

2326 S. Western Avenue • Chicago 8, Illinois

If you write maker identify as IEN-10409

Clipper MASONRY SAW

SPECIAL SHAPES

Precision Cut on the Job From Standard Refractory Stocks

Every shape and size refractory **cut in seconds.** Perfect fitting reline jobs that last longer—cost less. And Clipper's Patented Features give you DUSTLESS cutting, instant Portability and complete Flexibility.

Nearly 20 Years Experience Behind GENUINE CLIPPER PRODUCTS

The unqualified Clipper guarantee of satisfaction is backed by world-wide experience, the ability to select the finest materials and the "know-how" to put them together.

DON'T GAMBLE!

You are GUARANTEED ECONOMY with CLIPPER SUPERIOR BLADES!

. . . all specifications of Abrasive, Diamond and "CBR" (Break-Resistant) Blades guaranteed to "Consistently Provide the fastest cut . . . at the lowest cost . . . with the greatest ease!"

FREE TRIAL!

Discover how Clipper will increase profits by increasing production at reduced costs. "ON THE JOB" FREE TRIAL guarantees satisfaction at NO OBLIGATION.

PATENTED CLIPPER FEATURES

PRESSURE EQUALIZER
Automatically Cushions Blade for Longer Life.

SELECT-A-NOTCH
Instant Adjustment for Any Size Material.

SAME DAY SERVICE FROM YOUR NEAREST FACTORY BRANCH —SEE BELOW

Mr. Clipper

SAVE BY SAWING REPAIR PATCHES and TRENCHES

IN FLOORS—RUNWAYS —STREETS with a CLIPPER "CONSAW"
5 MODELS—
GAS OR ELECTRIC POWERED

Clipper MANUFACTURING CO.

- CINCINNATI
- BOSTON
- WASHINGTON, D.C.
- CHARLOTTE, N.C.
- PHILADELPHIA
- CLEVELAND
- ST. LOUIS
- CHICAGO
- HOUSTON
- AUSTIN, TEXAS
- SAN FRANCISCO
- ATLANTA
- DETROIT
- PITTSBURGH
- NEW YORK
- BIRMINGHAM, ALA.
- LOS ANGELES
- INDIANAPOLIS
- ST. PAUL
- MILWAUKEE
- DALLAS

IN CANADA — P.O. BOX 476, WINDSOR, ONTARIO

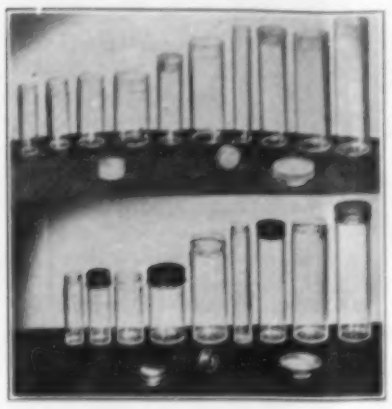
TEAR OUT AND MAIL!

CLIPPER MANUFACTURING CO.
11 E. 28TH ST., KANSAS CITY, MO.
Send FREE Literature and Prices on:
☐ CLIPPER MASONRY SAWS ☐ DUSTLESS MODELS ☐ DRY ONLY MODELS
☐ CLIPPER ABRASIVE BLADES ☐ WET ☐ DRY
☐ CLIPPER DIAMOND BLADES
☐ CLIPPER CONSAWS
98 IND.
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

If you write maker identify as IEN-10411

Packaging - Plastic containers made with threaded and push type tops

Source: LERNER PLASTICS INC.
502 South Ave., Dept. IEN, Garwood, N. J.



For quantity order

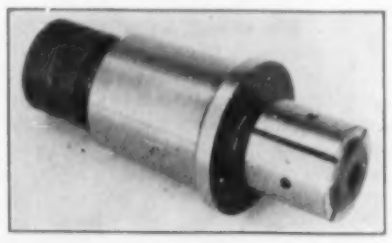
Nine sizes range from ½ by 2 in. to 1 by 4 in. in this new line of transparent plastic containers. They can be specified with press fitted caps or plugs or with threaded caps. Quoted sizes apply to the inside dimensions.

Two styles of decoration include enameling in specified color and then printing on this enameled background, in one or two additional colors, or printing directly on the containers, in one or two colors, without the enameled background. The containers are available in minimum quantities of 1,000 in plain design or 2,500 in decorated design. The company is prepared to supply samples and to quote prices against specified sizes and quantities.

If you write maker identify as IEN-10412

Chuck - Expanding collet design, five diameters, 0.750 to 1.250 inches

Source: VELOCITY ENGINEERING
555 W. Arden Ave., Dept. IEN, Glendale 3, Calif.



For precision work

Ross "Master" is a new internal expanding collet chuck now available from stock for use on 11 and 12-in. Logan lathes and subject to order for Atlas, Clausing, Hardinge, Sjogren, South Bend and Regal lathes. The chuck is designed to take soft pads provided by the user. The company expects to supply these pads or make them available in the near future. Body length, for each of the five working diameters, is 1.250 inches. Each assembly is made of tool steel heat treated and ground. List prices start at $50.

If you write maker identify as IEN-10413

Fischer & Porter Co., 20 Jacksonville Road, Dept. IEN Hatboro, Pa., has acquired the patents and engineering personnel of the Electrical Development Company, Inc., and the Digi-Coder Corporation. It is now in position to provide an integrated source for automatic instrumentation to record variables in suitable digital form. Temperature, pressure, liquid level, flow can be converted to any desired decimal or coded digital output by high speed electro-mechanical means. The development is described in the June issue of Ratonews. It is available on request.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10414

NEW WILKERSON PNEUMATIC SEPARATORS COST LESS . . . WORK BETTER

A complete new line of float type automatic moisture separators for either continuous or intermittent flow compressed air lines makes obsolete everything previously available to industry! We're prepared to prove it.

Line sizes—¼" to 10".

Write for Literature and Plant Demonstration

Tank Drains, Air-Line Separators, Sump Drains—
Automatic and Manual Units for High or Low-Pressure Systems.

WILKERSON *Automatic Air Products*

WAREHOUSE STOCKS, SALES AND SERVICE THROUGHOUT THE U. S. A.

WILKERSON CORPORATION
3469 SOUTH PLATTE RIVER DRIVE
ENGLEWOOD, COLORADO

If you write maker identify as IEN-10415

Sturtevant MICRONIZER® GRINDING MACHINE

Reduces Solids to Micron Sizes

The new Sturtevant *Micronizer* grinding machine is a fluid jet grinder especially designed to reduce solid materials to particle sizes in the micron ranges.

Sturtevant *Micronizers* are used for simultaneous dry grinding and classification of solids. The variety of materials that can be processed is large and includes both metallic and non-metallic minerals and ores, metals, pigments, insecticides, fungicides, pharmaceuticals, plastics, dyes and numerous other organic and inorganic products. Available in capacities from ½ to 3000 pounds per hour.

*Micronizer is the Registered Trademark of the Sturtevant Mill Co.

STURTEVANT MILL COMPANY
113 CLAYTON STREET, BOSTON 22, MASSACHUSETTS
Designers & Manufacturers of:
DENS AND EXCAVATORS • MIXERS • SCREENS • PULVERIZERS
ELEVATORS • AND COMPLETE FERTILIZER UNITS

If you write maker identify as IEN-10416

ONE-PIECE RUBBER FLEXIBLE COUPLINGS

Last Much Longer Than 3-Piece Couplings ...and Cost Less!

Millions of one-piece couplings are now in service on fractional horse drives. Their unique construction means there is nothing to wear or break. *They will wear considerably longer than 3-piece couplings.*

Flexible body and floating bushings correct EXTREME misalignment . . . dampen noise and vibration. Furnished in any length to suit your assembly.

BORES: 5/16", 3/8", 7/16", ½".
LENGTHS: 2" to 9".

Write for free sample for your test or inspection

FLEXIBLE COUPLING MANUFACTURING CO.
8145 South Dobson Avenue, Chicago 19, Illinois

OUR 37th YEAR

If you write maker identify as IEN-10417

what are your hardness testing needs?

portability?
Only 3" high, weighs 30 ozs.!

versatility?
Tests any size, shape, type metal!

speed?
One easy motion gives direct reading

easy to use?
Just press handgrips, read dial!

production?
A test a minute with the bench adapter

Each instrument is individually calibrated. Available in Newage Scales corresponding to:

Rockwell "A" 35-75 Scale
Rockwell "B" 5-100 Scale
Rockwell "C" 6-70 Scale
Rockwell "15N" 70-95 Scale
Brinell Medium 100-440 Scale
Brinell Low 50-260 Scale

ERNST PATENT 2536632.

Thousands in use in industry, labs, government agencies. Write today for full descriptive literature, Booklet 823

NEWAGE INTERNATIONAL portable metal hardness testers

NEWAGE INTERNATIONAL, INC., 235 E. 42 ST., N.Y., N.Y.

LOS ANGELES, CALIF.: 11775 SAN VICENTE BOULEVARD
TORONTO 14, ONTARIO: 3 BESTOBELL RD., QUEEN ELIZABETH WAY

If you write maker identify as IEN - 10418

SMALL AIR CYLINDER PACKS POWERFUL PUNCH

At 100 lbs. air line pressure this Super-Speed 2½" bore Bellows Air Motor develops enough force to punch a ½" diameter hole through $\frac{1}{16}$" thick mild steel. The speed of the piston rod is six to ten times the maximum speed of a standard air cylinder of the same bore.

BUILT-IN VALVE AND CONTROLS

The Super-Speed Bellows Air Motor comes complete with either a built-in manually operated valve or the Bellows Electroaire electrically-controlled valve, with or without safety controls. Standard stroke length: 2", 2½", 4", 6", 9" and 12".

Write Today for Bulletin CL30

Learn how you can use Bellows "Controlled-Air-Power" to produce more — at less cost. Address The Bellows Co., Dept. *IEN-954.*

THE Bellows CO.
AKRON 9, OHIO 1438

If you write maker identify as IEN - 10419

THE PACKAGING INDUSTRY, TOO, RELIES ON UE CONTROLS

UE Type E46
Model 62 Thermostat

The development of self-service departments virtually demanded the use of transparent bags — of cellophane, pliofilm, polyethylene and similar materials. But making containers from these materials created a problem: how to seal the folds accurately, quickly and permanently?

Simplex Packaging Machinery, Inc., solved this problem with heat sealing. It developed an exclusive, adjustable stop-and-seal cycle that assures dependable sealing of every bag, no matter what type or size.

United Electric's Type E46 Model 62 Thermostat, developed especially to solve Simplex's problem, provides the critical temperature control required in this cycle. It helps eliminate pin holes and burnt spots, and assures longer, stronger seals.

United Electric manufactures a wide line of standard controls that are used in aircraft fuel purging systems, paper mill machinery, diesel engines, milk pasteurizers, room air conditioners and in countless other applications.

Special controls can be adapted from standard models, or can be custom-built by United engineers working in cooperation with your own product development engineers.

Write today for information on the complete line of United Electric controls.

Standard and special thermostats and pressure switches

UNITED ELECTRIC CONTROLS CO.
80 School Street, Watertown, Mass.

If you write maker identify as IEN - 10421

Heat Treating - Gas generator produces protective furnace atmosphere

Source: IPSEN INDUSTRIES INC
715 S. Main St., Dept. IEN, Rockford, Ill.

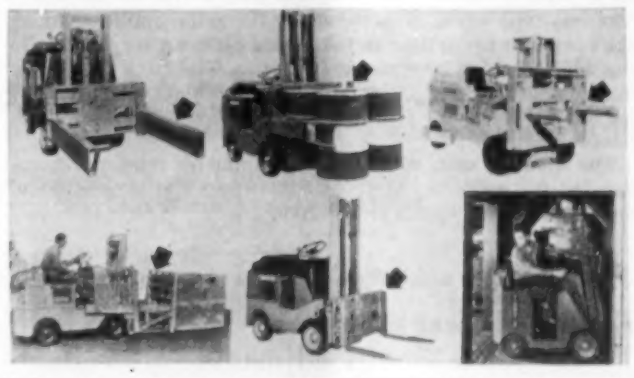
Type G-1250-G

Air and raw gas are drawn through proportioning flowmeters to enter this new generator. They are pumped into a catalytic cracking retort heated with multiple jet burners. Output from the retort is cooled by a water jacketed heat exchanger. The resulting endothermic gas is fed to a heat treating furnace to control the furnace atmosphere.

The equipment rates 1,250 cfh. It will handle natural gas, butane, propane and certain manufactured gases. Operation is protected by suitable safe guards. The new unit is part of a line of gas and electric generators with output capacities rating from 500 to 5,000 cfh.

If you write maker identify as IEN - 10422

Illustrated are six new interchangeable attachments for use on various types of Towmotor fork lift trucks. A crate clamp is shown to the upper left, originally designed to handle



1, 2 or 4 crated water heaters. It is controlled by a hydraulic operating mechanism. Springs are mounted along the inner length of each arm to contact cross members on a crate. They compress to prevent damage to the load. Next to the right is a clamp attachment to pick up and carry drums. Curved pivot mounted arms, with ribbed rubber gripping surfaces, provide a safe hold on two or four drums. To the upper right is a twin ram attachment for double loads of materials such as coiled wire, reeled cable, paper rolls, pipe, wheel castings.

To the lower left is a new device that adjusts forks sideways, loads and unloads materials, uses thin paper pallet sheets in place of the conventional fork entry type of pallets. It loads and unloads by power and can shift the load from one side to the other to set it down or pick it up in a narrow space. Side adjustment is to 3½ in. on either side of center. In the lower center is a special fork attachment that adjusts hydraulically from side to side for alternate use of the truck as a clamp or fork assembly. To the lower right is a new modified fork assembly in which the forks fold back over the truck to permit it to ride on a small elevator from one floor to another. Each of these attachments is available from Towmotor Corporation, 1226 East 152nd St., Dept. IEN, Cleveland 10, Ohio. The company has prepared literature No. DR-36 on the subject and will send copies on request.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10423

STEINEN

SPRAY NOZZLES
for Industry

Air Conditioning
Aerating Water
Degreasing
Fruit Crop Washing
Wax Coating
Hot Asphalt Spraying
Humidifying
Industrial Washers
Pest Control
Oil Burners
Aircraft
Spray Drying

ESTABLISHED 1907

Our engineering ability and precision craftsmen are prepared to develop custom nozzles to meet any special application requirements.

WM. STEINEN MFG. CO.
51 Bruen Street, Newark 5, N. J.

If you write maker identify as IEN - 10424

"Here's a Pump You Never Have to 'Baby'!"

Typical comment from users of "Buffalo" Pumps

"BUFFALO" TYPE "RR" PUMP FOR CLEAR WATER SERVICE

If you want a pump for general service or boiler feed, look into the rugged "RR"! You'll like its modest first cost, its high efficiency (even at heads up to 1500'), its easy maintenance—but most of all, you'll like its year-after-year endurance. That's the true money-saver in a pump! Better write for Bulletin 980 now and see why so many "Buffalo" users are enthusiastic. Pick your capacity, 2 and 4-stage models, up to 900 gpm.

BUFFALO PUMPS, INC.
496 Broadway Buffalo, New York
Subsidiary of Buffalo Forge Company
Canadian Pumps Ltd., Kitchener, Ont.
Sales Representatives in all Principal Cities

If you write maker identify as IEN - 10425

Easy rolling and greater cushioning make Goodyear's new XTRA CUSHION solid tire in the All-Service tread (below) a high favorite with truck operators and plant owners.

Goodyear Job-Fitted Industrial Tires CUT TIRE COSTS!

Tread Design Is Job-Fitted

The right tread design for your operation. Smooth and Grooved for easy rolling. All-Service or the famous All-Weather wherever traction is needed.

Compound Is Job-Fitted

The right compound for outstanding performance. Your choice of either UNiversal chip-resistant or Neoprene oil- and acid-resistant compound *at no extra cost!*

Size Is Job-Fitted

The right size for every job. Over 100 different solid types and sizes plus a full line of pneumatic and semi-pneumatic tires make Goodyear Industrial Tires America's most complete line!

Learn how this right combination of size, tread design and compound can cut your industrial tire costs. Call your Goodyear Dealer for a free Industrial Tire Appraisal or write:

Goodyear, Industrial Tire Sales
Akron 16, Ohio

All-Service Tread Xtra Cushion

Smooth-Solid

All-Weather Tread

Rib-All-Weather Pneumatic

Semi-Pneumatic Cushion

USE THE RIGHT TIRE FOR THE RIGHT JOB-USE

GOODYEAR
INDUSTRIAL TIRES

All-Service, All-Weather, Xtra Cushion—
T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

If you write maker identify as IEN-10427

AGASTAT
trademark
pneumatic time delay relays

- Light, versatile, dependable
- Unaffected by voltage variations
- Instantaneous recycling
- Adjustable timing from 0.1 second to 10 or more minutes
- Available in models which offer:

delays on energizing and de-energizing — two step delays
manually actuated time delay switch — remote push button control

Write our application engineers for help with your timing problem. Address Dept. A13-92.

AGA DIVISION
Elastic Stop Nut Corporation of America
1027 Newark Avenue, Elizabeth, New Jersey
Pioneers in pneumatic timing.

If you write maker identify as IEN-10428

HANDEEZ

The Hand Cleaning Compound That Removes Ground-In Grime Gently and Safely

Shop grime works deeply into pores . . . its residue is a contributory factor in dermatitis. Tiny skin cuts caused by harsh abrasives are entering points for skin infections. HANDEEZ *lifts* hard-to-remove grime from the pores by means of a sterilized vegetable emollient. The result: clean, smooth skin, even where cutting oils and other stubborn shop grime are present. HANDEEZ is ideal for both shop and office use.

Write for literature, or see your Dolge Service Man.

FOR FREE SANITARY SURVEY OF YOUR PREMISES SEE YOUR DOLGE SERVICE MAN

operadable DOLGE
WESTPORT, CONNECTICUT

If you write maker identify as IEN-10429

NOW! a new color for Gaco N-700
Neoprene Maintenance Coating
Available for the first time in
ALUMINUM

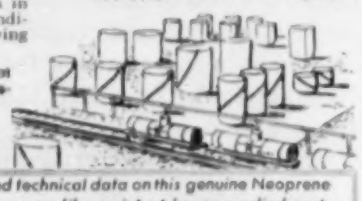
GACO NEOPRENE PROTECTION PLUS—GACO N-700, Aluminum, gives all the performance-proven corrosion protection found in GACO N-700, Gray and Slate Black, *PLUS* the advantages of the aluminum color.

TIME-TESTED—GACO N-700, Aluminum, has been field tested for over 100 weeks in severe corrosive fume conditions, and passed with flying colors.

GACO N-700, ALUMINUM, is not recommended for service in presence of acid halides because these agents cause it to discolor. GACO N-700 *gray or black* should be used instead.

REFLECTS LIGHT & HEAT—GACO N-700, Aluminum, adds the light and heat reflecting qualities of aluminum to the long-lasting corrosion protection of genuine GACO Liquid Neoprene.

EASY TO APPLY — GACO N-700, Aluminum, is easy to apply by roller, brush or spray.



Send me complete practical and technical data on this genuine Neoprene Maintenance Coating that goes on like paint at lower applied cost.

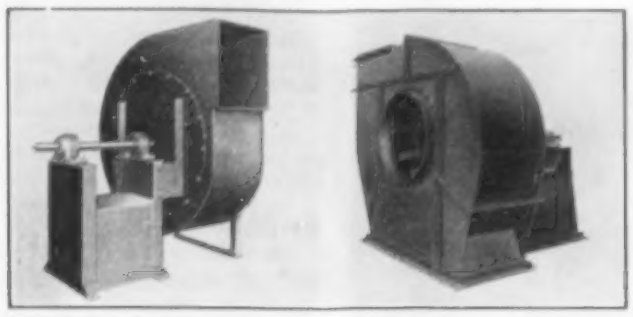
NAME _____
COMPANY _____
ADDRESS _____

Send this coupon to:
GATES ENGINEERING COMPANY
100 S. West St., Wilmington, Delaware
The pioneer maker of Neoprene coatings and linings

If you write maker identify as IEN-10430

Blower - Centrifugal design to circulate, convey, cool, ventilate

Source: CLARAGE FAN CO.
620 Porter St., Dept. IEN, Kalamazoo, Mich.



Illustrated data in Bulletin 702

Inlet sizes range from 11 to 60 in. in diameter in this new Type XL line of centrifugal blowers. Static pressure rating is to 18 in. and air handling capacity is to 130,000 cu. ft. per minute. Operation can be maintained in temperatures to 1,000 deg. F. when sleeve bearings are water jacketed design. Standard construction includes self-aligning anti-friction grease type bearings with ring oiled sleeve bearings available to order.

Three types of impeller include an open wheel for material conveying applications, one in which rims are added to the two sides of the open type assembly and a third in which a back plate is employed on one side and a rim on the other. The rim type wheel is intended for the same applications as the open unit but is able to take more difficult service due to the added rigidity provided by the rims. The back plate type is recommended for industrial uses in mechanical draft service but not to handle fibrous materials, heavy solids or high temperature gases.

The smallest unit, with the 11 in. diameter inlet, is recommended for operation to about 3,000 rpm. The largest 60-in. unit is suited for speeds to 550 rpm.

If you write maker identify as IEN-10431

Testing - Power supply for manually adjustable dc. voltage

Source: BECKMAN INSTRUMENTS INC.
Box 296, Dept. IEN, Richmond, Calif.

Utility instrument

Model 701 is a new unregulated power supply employing an auto transformer in its primary circuit to permit adjustment of dc. output to a desired value from zero to maximum. The output voltage is monitored by a front panel meter that can be switched to indicate current. Separate terminals are mounted on the housing face for positive, negative and ground.

The instrument provides dc. voltage from 0 to 250 volts at maximum load of 90 ma. or 360 volts on open circuit. Filament power is 6.3 volts ac. at 3 amp., center tapped. Ripple is within 20 mv. rms. by use of a two section choke input filter. The instrument is manufactured by the company's Shasta Division.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10432

FLEXIBLE AS STRING . . . GLASS-CLEAR . . . FEATHER-LIGHT . . . FULLY RESISTANT TO ACIDS, ALKALIES, OILS, GREASES, AND WATERS . . . MIRROR-SMOOTH . . . TOUGH AS LEATHER . . . NON-OXIDIZING . . . NON-TOXIC . . . LONG-WEARING . . . FOR THE TRANSMISSION OF LIQUIDS, GASES, AND SEMI-SOLIDS.

TYGON Tubing is available in six standard compounds — continuous lengths — bores up to 2" ID — with or without outer braid reinforcement. Special compounds and sizes made to order.

Write, today, for detailed information and technical Bulletin T-77!

232C

U. S. STONEWARE
AKRON 9, OHIO
PLASTICS AND SYNTHETICS DIVISION

If you write maker identify as IEN-10433

Construction - Excavator rates 20 ton when rigged as a crane

Source: KOEHRING COMPANY
3026 W. Concordia, Dept. IEN, Milwaukee 16, Wis.

Crawler Mounted 405

Construction of this new crawler mounted convertible excavator includes a welded boom, mechanical swing clutches, removable grooved metal drum lagging, automatic traction brakes, positive steering, self-cleaning crawlers. The machine can be lightened for road travel by removing the crawlers and counter weights. Attachments include a shovel and hoe designed for buckets of 1-yd. capacity. Digging depth of the hoe is 22½ feet. Width of the hoe dipper is about 3½ ft. over the side cutters.

Swing speed is 3.62 rpm. Travel speed is 0.8 mph. The machine will ride easily on grades to 30 per cent. It is available with a gasoline or diesel engine or electric motor drive.

If you write maker identify as IEN-10434

Floors - Surfacing material for worn, rotted and broken floors

Source: STONHARD COMPANY
1306 Spring Garden, Dept. IEN, Philadelphia 23, Pa.

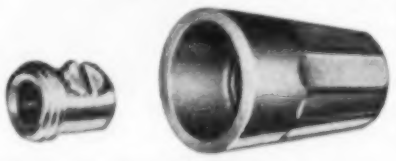
Technical data upon request

Stoncap trade names a new bulk material for application over wood, concrete or composition floors, indoors or outside. A ¼-in. average thickness will smooth out worn, broken and rotted surfaces and will present a new surface that is resistant to attack by oil, grease and other destructive agents. No primer is required. The material can be installed after the surface has been cleaned and can be used the following day. Three colors are maroon, green and gunmetal.

If you write maker identify as IEN-10435

Connector - Plastic splice cap and clamp screw equipped metal sleeve

Source: IDEAL INDUSTRIES INC.
1108 Park Ave., Dept. IEN, Sycamore, Ill.



Illustrated Form J-3A

Wire ends are stripped, inserted into the metal sleeve of this new wire connector and the set screw in the sleeve is tightened to hold them in place. Surplus ends are cut off flush with the end of the sleeve and the plastic splice cap is threaded into place to complete a connection. The connector can be opened and re-used repeatedly. It is available in three sizes for various wire combinations from four No. 18 to six No. 14 or two No. 10 one No. 12 or any other equivalent arrangement. The clamping screw and sleeve are made of brass. The plastic shells are knurled for a good grip.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10436

Carry a welding shop in one hand... *when you* KOLDWELD!

Many difficult wire welding jobs become easy with the new UTICA® Koldwelder! It buttwelds through pressure alone. No heat, no electricity, no chemicals are needed. Flash snaps off easily, leaving wire diameter unchanged. Each weld takes only a few seconds—yet tests show they have from 95% to over 100% the tensile strength of the parent wire.

You can weld aluminum, copper and other non-ferrous metals. Also similar or dissimilar metals... the same or different gauges. You get a solid intermolecular connection so homogeneous that after wire drawing the Koldweld is often impossible to locate. Koldwelds are electrically perfect, never weather or corrode.

Get all the facts on this new type of welding. Write for informative brochure.

Send for brochure

UTICA KOLDWELD

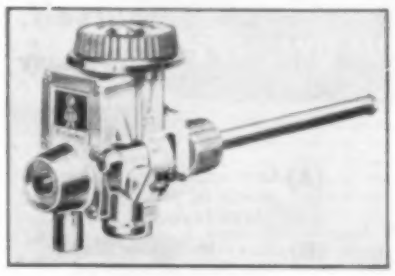
UTICA DROP FORGE & TOOL CORP., Utica 4, N. Y.

"UTICA," when used to refer to hand tools, is a trade mark Reg. U.S. Pat. Off.

If you write maker identify as IEN - 10437

Control - Temperature regulator builds into a gas fired water heater

Source: ROBERTSHAW-FULTON CONTROLS CO.
2415 W. Cumberland, Dept. IEN, Knoxville 16, Tenn.



For makers only

Unitrol Model 102 is a new temperature regulator that has been developed for sale to gas fired water heater manufacturers. It can be employed in connection with any type of gas including liquid petroleum. Manufacturers employing the unit can specify their name and trade mark to be imprinted on the face.

The construction combines three elements into a single unit. These are a thermo-magnetic automatic pilot for complete shut-off protection in the event of gas failure, a snap action thermostat, and a gas cock. The unit is made of aluminum alloys for the close fitting parts exposed to the gas. Corrosion resistant brass and copper are employed for the parts immersed in water. An air space separates the water immersion element and the gas valve. A built-in filter removes gum.

If you write maker identify as IEN - 10438

Drafting - Adhesive labels on transparent plastic to save drawing

Source: STANPAT
Dept. IEN, Whitestone 57, N. Y.

Free sample upon request

Title blocks, specification boxes, symbols, standard components, sub-assemblies, standard cross-sections, any part of a drawing that requires repetition, can be supplied by the company on its new adhesive coated transparent plastic sheet material. A temporary smooth backing over the adhesive is peeled off prior to application on a tracing. It will hold in place until removed. It will not dry out or wrinkle in storage.

Application can be made to the front side of the tracing and the draftsman can letter directly on it. The material itself also makes a first class invisible repair for torn tracings. It requires no heat for application and is not affected by heat from blue printing machines. Sizes are available to order.

If you write maker identify as IEN - 10439

The power take-off from a tractor connects to a new mobile generator manufactured by Katolight Corporation, First Ave. at Chestnut, Dept. IEN, Mankato, Minn., to produce emergency power. The generator is available in sizes rating 5 to 25 kw. It attaches to a tractor to ride as a trailer for movement from one location to another.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10440

THE BENNETT BIG "G"
pumps liquids
SIMPLY—QUICKLY—CLEANLY

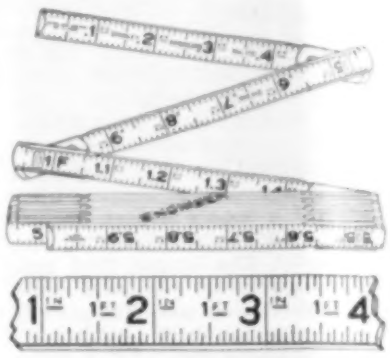
The double-action Big "G" pumps efficiently on both strokes of the handle—reduces waste, mess and hazard in handling liquids. Designed specially for petroleum products such as gasoline and lubricating oil, it also handles anti-freeze, turpentine, cutting oil and various solvents. Special models furnished with hose or spout allow transfer of many other industrial liquids. Let us know your liquid handling problems.

JOHN WOOD COMPANY
Bennett Pump Division
Muskegon, Michigan
Offices in Principal Cities

If you write maker identify as IEN - 10441

Gage - Folding wood rule reads in inches and in foot decimals

Source: STANLEY TOOLS
480 Myrtle St., Dept. IEN, New Britain, Conn.



List is $1.85

Green End Engineers Rule No. 116 has been added to the company's line for use by civil engineers, surveyors, general contractors. It reads 10ths and 100ths of a foot or feet in inches by 16ths. The marking is "mistake proof" since foot and decimal markings appear in red at each 10th and each foot. Double edge graduations are employed. The side opposite the decimal face is graduated in feet and inches and in 16th of an inch. Here, each foot number is marked in red and repeated in red at each inch.

Bold numbers and graduations are embedded in white enameled wood protected by a plastic finish that is resistant to attack by moisture and common solvents. Nickel silver ball lock joints are combined with air seasoned kiln dried hardwood sticks. Length is 6 feet.

If you write maker identify as IEN - 10442

Lubricating - Pressure unit employs a spring backed feed piston

Source: BRONZE BEARINGS INC.
534 North Ave., Dept. IEN, Cranford, N. J.

Pin meters flow

Hi-Lo designates this new pressure type lubricator to feed heavy oil or grease to one or more bearings. The lubricant is introduced and high pressure is applied manually when an operator connects the hose of a pressure gun to a fitting at the base of the new lubricator. He operates the gun to fill the lubricator against the action of internal spring pressure causing the piston to retract and applying high pressure to the bearings. Upon removal of the gun, the spring takes over the feed action. A tell-tale rod at the top of the assembly shows lubricant remaining in the housing. Four capacities range from 2 to 8 ounces.

If you write maker identify as IEN - 10443

Underground gas leaks can be detected, without digging up a pipe, by application of a new instrument known as a Gascope. It can analyze accurately a range of gas concentrations both below and above the explosive limit. The instrument is carried by the user. It is operated with an aspirator bulb and probe. Manufacturer is Mine Safety Appliances Co., 201 No. Braddock Ave., Dept. IEN, Pittsburgh 8, Pa.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10444

Drill More Holes Per Hour
In ANY Pattern . . .
On ANY Drill Press

with a Adjustable MULTI-DRILL

DRILLS 2 to 8 HOLES at ONE STROKE

Increase production up to 800% . . . save time, cut costs. MULTI-DRILLS make *any* drill press produce *more*. Attached without alterations or special tools. Quick, easy setups of universally adjustable spindles give you more flexibility . . . wider application. Handles any hole pattern within 9" circle; centers close as ½". Extension Spindles available to increase working area to 22½". Special adaptations available.

model 900

DRILLS ANY HOLE PATTERN

See us at Booth 1309, National Metal Show, Chicago

COMMANDER MFG. CO.
4219 W. Kinzie St. • Chicago 24, Illinois
Product of Commander . . . Builder of Production Tools

If you write maker identify as IEN - 10445

SUPER FINISH OF UNIVERSAL DRILL BUSHINGS reduces tool wear to a minimum

One sure way to cut excessive tool wear in your operations is to specify Universal Drill Bushings because their superfinish bores help reduce wear on production tools to an absolute minimum, especially in close tolerance work. The blended radius on the top inside diameter helps prevent tool hang-up and breakage. 100% concentricity and hardness tests insure accuracy, uniform high quality and long life. Knurled heads provide a quick, sure grip. Universal Drill Bushings are produced in a complete range of standard sizes and lengths. Orders for special dimensions will receive prompt attention. For complete information, write to the office nearest you—Universal Engineering Sales Co., 1060 Broad St., Newark 2, N.J.; 5035 Sixth Ave., Kenosha, Wis. — or our home office.

UNIVERSAL ENGINEERING COMPANY
FRANKENMUTH 6, MICHIGAN
171-A

If you write maker identify as IEN - 10446

Added Evidence that — Everyone Can Count on VEEDER ROOT

275 laughs in 113 minutes . . . this was the certified count taken at a recent performance of a Broadway show by two executives of Fact Finders Associates, Inc. . . . both using Veeder-Root Hand Tallies.

This is another one of the hundreds of uses for each of the hundreds of Veeder-Root Counters which are made for manual, mechanical and electrical operation. Chances are that *you*, too, can count on Veeder-Root . . . with counters built into your products as standard parts, or attached to your production equipment. We'll help you to figure out how. Write:

VEEDER-ROOT INCORPORATED
HARTFORD 2, CONNECTICUT
Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C.
Montreal 2, Canada • Dundee, Scotland
Offices and Agents in Principal Cities

"The Name That Counts"

If you write maker identify as IEN-10448

HOW TO HANDLE DRUM FLUIDS faster!

WORKS DOZENS OF WAYS!

Handiest piece of equipment in the plant! That's what they say at scores of plants where this Fast-Flo Drum Pump is used. It's a really versatile worker . . . has dozens of specific uses. Here are just a few ways it will work for you:

- For transferring fluids cleanly and safely from upright original drums.
- For supplying or adding fluids to production lines, direct from original drums.
- For agitation and mixing in closed drums.
- For injecting fluids such as cutting oil at high pressure.
- For intermittent spraying of lacquers, varnishes and other light coatings.

Fast-Flo is surprisingly low in cost . . . air-operated . . . easy to handle . . . and *rugged!* You get double-action, high volume, controlled delivery, wherever you use it.

Write today for the new Fast-Flo Idea Book which tells you where and how this pump can save you money.

GRAY COMPANY, INC.
91 Grace Square, Minneapolis 13, Minn.

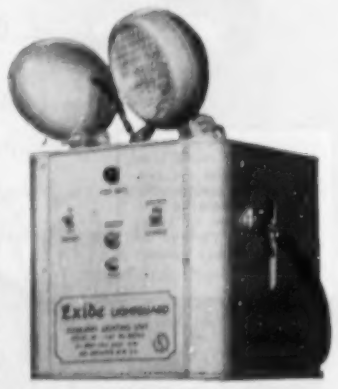
GRACO *Fast-Flo* **DRUM PUMP**

Regional Offices: New York, Philadelphia, Detroit, Atlanta, Chicago, San Francisco

If you write maker identify as IEN-10449

WHEN LIGHTS GO OUT EXIDE® LIGHTGUARDS® GO ON INSTANTLY...AUTOMATICALLY!

Wherever people gather, there's a vital need for Exide Lightguard protection. Some industrial plants use as many as 200! Here are spots where you now need Lightguard emergency lighting protection: *Corridors, aisles, cafeterias, lobbies, boiler rooms, engine rooms, switchboard rooms, loading platforms, exits, firetowers.*



NEW MODEL M

With the new Model M you get instant adequate lighting whenever normal lighting is interrupted—no matter what the reason. The Model M has a two-rate charger—high rate or trickle. After the emergency, automatic controls recharge the Exide battery specially designed for long life, easy maintenance, dependable operation. UL-approved, can be plugged into any 115 volt outlet—each lamp illuminates up to 10,000 square feet.

WRITE for interesting folder with facts on why Exide Lightguards guarantee more protection for every dollar you invest in such equipment.

Exide INDUSTRIAL DIVISION
The Electric Storage Battery Co., Philadelphia 2, Pa.

If you write maker identify as IEN-10450

FIND OUT About The Hand Truck Designed for YOUR Package

Find Out About American's complete line of Hand Trucks.
Find Out About American's "Designed-In" balance.
Find Out About American's Lifetime construction.
Find Out About American's Steelite® Industrial Wheels.
Find Out All About American Today—clip and mail the coupon Now!

THE AMERICAN PULLEY COMPANY

4240 Wissahickon Ave., Phila. 29, Pa.

Complete line of Pressed-Steel Hand Trucks • Barrel Cradles • Steelite® Industrial Wheels

Gentlemen:
Please send me the complete story on American Pressed-Steel Hand Trucks.

Name _____
Firm Name _____
Address _____
City _____ Zone _____ State _____

If you write maker identify as IEN-10451

Feeding - Scale type unit weighs material to molding machine

Source: EXACT WEIGHT SCALE CO.
944 W. Fifth Ave., Dept. IEN, Columbus 8, Ohio

For precision molding

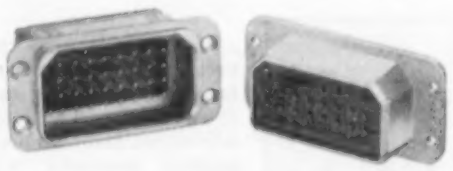
Capacity can be set at 50 to 100 oz. for this new heavy duty weigh-feeder to serve plastic injection molding machines. It is known as Model 273-F-O-IM-6. It is equipped with a 108-oz. weigh bucket and a supply hopper holding 350 lb. of plastic molding material. The hopper, feed pan, weigh bucket and dump chute are stainless steel. The scale is the company's Model 273 Over-and-Under unit with a beam and poise for either metric or avoirdupois readings as specified by the user.

The feeder conveys the plastic material from the supply hopper to the weigh bucket until the latter has received a predetermined weight. A slight movement of the beam opens the circuit to the feeder and stops material flow. At this point, the gate of the weigh bucket is opened by a solenoid and the material drops into the machine's charging chamber. The cycle is synchronized with the machine so operation requires no attention as long as material remains.

If you write maker identify as IEN-10452

Connector - Multi-contact plug and socket for rack and panel use

Source: CANNON ELECTRIC CO.
3209 Humboldt St., Dept. IEN, Los Angeles 31, Calif.



Bulletin PR-DP1

Type DPA and Type DPX are two new series of rack, panel and chassis connectors in comparatively miniature size. The former measures 2 by 1 by about ¾ inch. The latter measures 2⅞ by 1⅛ by 1⅛ inches. Straight and angle 90-deg. junction shells, with integral clamps, are available for Type DPA.

Current arrangements include standard 5, 10 and 5-amp. coaxials to a total of 32 contacts. The shell is made of aluminum. Insulation materials are melamine plastic or Diall 51-01.

If you write maker identify as IEN-10453

Modified versions of the declassified "water boiler" and "swimming pool" reactors, for use in training personnel for the nuclear power industry and to conduct basic nuclear research, are available from Babcock & Wilcox, 161 E. 42nd St., Dept. IEN, New York 17, N. Y. Both are suited for neutron experiments, radiation chemistry, biological research, radioisotope production and materials development. Prices range from $100,000 to $150,000.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10454

NEW CATALOG 754

An Aid in the Quick Selection of Stock Roller Chains and Sprockets

Packed with helpful information and useable data, this new 64-page Catalog 754 will be found valuable to engineers and production men. How to select a stock drive; calculate chain length; installation recommendations; speed ratio tables; ready-to-use finished-bore and taper-bushed sprockets; flexible couplings and complete roller chain technical data, all pitch sizes—are some of the topics covered . . . A copy will be mailed free on request . . . DIAMOND CHAIN COMPANY, Inc., Dept 465, 402 Kentucky Ave., Indianapolis 7, Ind.

DIAMOND ROLLER CHAINS

If you write maker identify as IEN-10455

COBURN OVERHEAD CONVEYING EQUIPMENT

Save money... Install it yourself.

Here are the simple ABC's of Coburn's easy and inexpensive installation.

(A) Our engineers make a study of your particular plant layout.

(B) Easy-to-follow plans are then submitted.

(C) These plans, plus Coburn's simplicity of parts and design enable your own plant personnel to set up your overhead conveying system quickly and economically.

Write for Catalog #220 to Coburn Sales and Engineering, 56 Sterling Street, Clinton, Mass.

2598

COBURN PRODUCTS
PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

If you write maker identify as IEN-10456

A LOADED 5-YD. TRUCK IN 30 SECONDS!

BROS SERIES "A" *Sno-Flyr*

ROTARY SNOW PLOW ON TRACTOR OR JEEP DOES WORK OF 100 HAND SHOVELERS!

● In actual operation, 5-yd. dump trucks can be loaded in just 30 seconds compared with 5 to 10 minutes for hydraulic front-end bucket loaders. Also, does work of 100 hand shovelers based on 8 consistent shovel loads per man, per minute.

The "A" Series Rotary mounts easily to most front-end loaders on your present wheel-type tractors, using same pins as loader bucket. (Also available to fit 4-wheel drive Jeeps.) Slit-spiral rotor-rake chews up wet, heavy, "chunky" snow with ease . . . handles 3 to 4 tons a minute. Plow raises like loader bucket to get at drifts up to 8 ft. Casting chute rotates 180°. Offered in 3 plowing widths—4' 4", 5' 6" and 6' 6". "Finger-joint" chute capper or long chute for truck loading available. Write today for Series "A" Bulletin.

WM. BROS BOILER & MFG. COMPANY
Road Machinery Division
1147 Tenth Avenue S. E., Minneapolis 14, Minnesota

If you write maker identify as IEN-10457

VARIABLE SPEEDS

Just turn a dial to get any rpm. Motor, speed changer and gear train all housed in one unit. ¼ to 50 h.p.

REQUEST VARIDRIVE BULLETIN

U.S. VARIDRIVE
THE MIRACLE MOTOR

U.S. ELECTRICAL MOTORS Inc.
Los Angeles 54, California Box 2058 Milford, Connecticut

If you write maker identify as IEN - 10458

TO MEET EVERY CUTTING NEED HOBBS HAND AND POWER SHEARS

Whether you need cutters for production work or for occasional use, you'll find the most efficient and most economical answer in the Hobbs line of Jacques Hand Shears and Hobbs Power Shears. They are specially designed to cleanly, accurately cut paper, plastic, fabric, laminations, leather, synthetics and many other materials from rolls and sheets. Ruggedly built, they have hardened steel blades — will give you years of trouble-free service.

For continuous or intermittent cutting in quantity, Hobbs offers you a powerized cutter with gauges that is adaptable to any production set-up. Cuts at speeds up to 87 strokes per minute. Completely automatic production cutters are also available.

The Jacques Universal Shear is complete with table and accurate gauges for cutting sheets into uniform strips 1/8" to 20" in width. Six sizes available — 30" to 60".

You can choose from 12 sizes of Jacques Bench Shears for cutting in widths up to 10 feet. Special tables and gauge arrangements to order. The Jacques, Jr. Cutter is an accurate, versatile all-metal unit for widths 12" to 36". Self-supporting clamp automatically holds material. Table and bench models available.

Get the complete facts today! Write for catalog sheet describing any of these modern Hobbs Shears. No obligation.

HOBBS MANUFACTURING CO.
40 SALISBURY ST., WORCESTER 5, MASS.
New York Office: 132 Nassau St.
Chicago office at 849 West Washington Blvd.
EST 1883
Manufacturers of Modern Converting Machinery
Jacques Hand Shears; Hobbs Production Cutters, Corner Cutters, Slitters and Rewinders, Autotronic, Tri-Power and "Adjustable Die" Presses

If you write maker identify as IEN - 10459

OLD-FASHIONED INDUSTRIAL WIPERS STEALING YOUR PROFITS?

Modernize your shop—save money—with new

Type 1300 KIMWIPES!

You'll be money ahead when you switch to Type 1300 Kimwipes. They're the modern new disposable wipers that actually replace old-fashioned cloth and waste wiping material—and cost four to ten times less!

New Kimwipes 1300 are soft. Strong. Absorbent. A full 12" x 18" in size, they hold up to 8 times their own weight in liquids. They're non-abrasive, too. There's no holdover of metal chips or other infectious material that may cause dermatitis and loss of man hours. Type 1300 Kimwipes are absolutely clean to start with, and are disposed of after use. Ask your salesman for samples. And remember, there are two other kinds of Kimwipes you can choose from: Type 900-S (optical wipers) and Type 900-L (regular wipers). Save money. Order today!

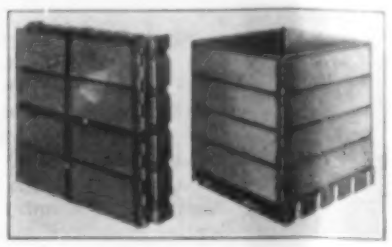
Kimberly Clark
INDUSTRIAL WIPERS
Kimwipes

Kimberly-Clark Corporation • Neenah, Wisconsin

If you write maker identify as IEN - 10461

Handling - Collapsible steel box folds to store and handle when empty

Source: REPUBLIC STEEL CORP.
3140 E. 45th St., Dept. IEN, Cleveland 27, Ohio



Bulletin ADV 615

Collaps - A - Tainer trade names a new 18-gage steel box with 16-gage reinforcements in an assembly consisting of two sets of hinged sides and a steel pallet base. The sides hinge open to 90 deg. and adjacent corners then fit together in piano type hinges to take a locking rod. The sides assemble on the steel base where they nest in four directions to prevent sliding. Inside dimensions are 30 by 30 by 30 inches.

The pallet stands 3½ in. above the floor. Weight is about 100 pounds. When the box has been collapsed, for storage or return to an original point, it can be held together by strapping. In this arrangement, it measures 31½ by 31½ by 9 inches.

If you write maker identify as IEN - 10462

Water Proofing - Silicone fluid repels water from above ground masonry

Source: GENERAL ELECTRIC CO.
101 Plastics Ave., Dept. IEN, Pittsfield, Mass.

Technical data upon request

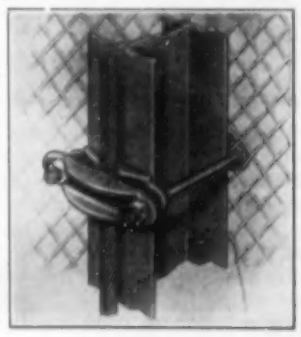
Dri-Film 103 trade names a new silicone water repellent fluid for application by brush or spray on above-ground brick, concrete, mortar, stone. Coverage is 75 to 100 sq. ft. per gal. of the diluted fluid to provide one coat.

Rain splashes and runs off the silicone treated surface carrying away dirt deposits so the exterior surfaces are kept clean. Peeling and flaking of interior walls is minimized because the new repellent reduces the passage of moisture through the masonry without preventing free "breathing".

If you write maker identify as IEN - 10463

Connector - Grounding clamp for application on H-beam fence posts

Source: BURNDY ENGINEERING CO.
Richards Ave. N, Dept. IEN, Norwalk, Conn.



Copper alloy

Type GA-H designates a new grounding clamp that applies on H-beam fence posts from 1⅞ to 2½ in. in width. The heads of the clamping bolts are recessed and captured in slots in the clamp to permit single wrench installation. Conductor sizes range from No. 4 solid to 250 mcm. copper cable. The clamp parts are made of copper alloy.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10464

With new J-M Chempac®

the asbestos-Teflon packing that withstands virtually all chemicals

This new J-M development combines the sealing action and heat resistant qualities of asbestos with the all-around chemical resistance of Teflon. With Chempac, fewer packing styles are needed for chemical equipment because it seals against many acids, alkalies and solvents at temperatures to 500F.

Chempac is recommended for packing pump rods and shafts, valve stems, agitator shafts and many other applications. This Teflon-protected asbestos packing is available from your Johns-Manville Distributor. For complete details, phone him or write Johns-Manville, Box 60, New York 16, N. Y. In Canada, 199 Bay Street, Toronto 1, Ontario.

JM

Johns-Manville PACKINGS AND GASKETS

If you write maker identify as IEN - 10465

for OVER-UNDER WEIGHING with TOLEDO SPEEDWEIGH®

Here's *new speed with accuracy* for you in check weighing, packaging, many other operations today . . . 3 sizes —to 5 lb., to 20 lb., to 50 lb.! Shadowfree wide-angle reading . . . accurate to 1/64 of an ounce . . . new improved knife-edge check link system . . . *exclusive* "coined" bearings for greater accuracy, longer life . . . stainless steel beam . . . enclosed levers in one-piece housing . . . choice of platters and scoops . . . many more *plus* features! Write for bulletin 1416. Toledo Scale Company, Toledo 1, Ohio.

TOLEDO® Headquarters for SCALES

If you write maker identify as IEN - 10466

Mueller Brass Co. "600" series bearing bronzes are lightweight, high strength copper-zinc base alloys with excellent bearing and mechanical properties, non-galling and non-seizing characteristics and good resistance to corrosion. There are six members of the "600" series . . . one for every purpose. Write today for complete information about the MUELLER BRASS CO. "600" series alloys for forgings, rod or screw machine products.

MUELLER BRASS CO. 119-A
PORT HURON 26, MICHIGAN

If you write maker identify as IEN - 10467

OUTPUT JUMPS 110%

with Millers Falls "Adjustomatic"® Clutch Electric Screw Drivers

Driving tiny, self-tapping screws in a thin plastic housing — it's the kind of job usually considered too delicate for power drivers.

Yet, Millers Falls No. 52's with the *patented* "Adjustomatic" Clutch are performing this operation speedily, accurately — without splitting the plastic walls — without stripping threads. And — production has more than doubled.

Ruggedly-built, vibrationless, power-packed, these remarkable drivers have a velvet touch. Torque adjustment can be set within inch-ounces — and stays put month after month.

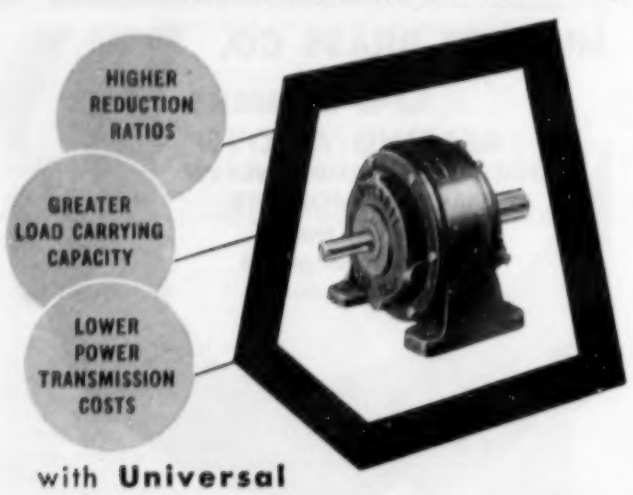
If you want to speed up your own driving operations, write for full details on the Millers Falls broad line of high-production "Adjustomatic" Clutch Drivers — or let us arrange for a convincing demonstration.

MILLERS FALLS TOOLS
The Mark of Superiority

MILLERS FALLS COMPANY
Dept. P, Greenfield, Mass.

If you write maker identify as IEN-10468

If you write maker identify as IEN-10469



with **Universal HELIOCENTRIC Speed Reducers**

● Only Universal's exclusive Heliocentric design gives you ratios up to 80:1 in one-stage units; 6,400:1 in two-stage units. Other unique features:

Flexible Design—Savings in space and weight plus added efficiency for all power applications. ⅛ to 50 hp. range. Other drives to 10,000 hp.

Balanced Load Action—Two complete Heliocentric assemblies timed 180° apart distribute driving power over two-thirds of the cycle for unsurpassed smoothness and balance of working parts.

Low Cost, Trouble Free-Operation—Only two principal moving parts. Needs little or no maintenance. Completely moisture, dirt and oil proof.

Universal offers a complete line of Heliocentric and Helical Speed Reducers . . . Strateline, Offset, Right-Angle, Motorized, Herringbone.

Write Dept. G for complete details.

UNIVERSAL GEAR CORP.
1452 EAST 19TH STREET • INDIANAPOLIS 7, INDIANA

If you write maker identify as IEN-10470

Makes Short Work of the Tough Cleaning Jobs

The powerful Oster "Sewer Master" quickly removes obstructions 100 feet or more from the sewer entrance; yet it weighs less than 100 pounds and is easily wheeled to the job, even up or down stairs.

The chuck jaws securely hold and revolve the "spake" in either direction at any distance from the sewer entrance. A large selection of cutting tools are available for most efficient removal of various types of obstructions. For all the facts on the time and money saving "Sewer Master", contact your Oster Distributor, or write us direct.

THE OSTER MANUFACTURING CO.
Main Office and Factory:
2053 East 61st St. • Cleveland 3, Ohio

Builders of Cost Reducing Threading Equipment Since 1893

If you write maker identify as IEN-10471

Bearing - Nylon flanged sleeve for combined radial and thrust loading

Source: THOMSON INDUSTRIES INC.
1029 Plandome Road, Dept. IEN, Manhasset, N. Y.

Made to order

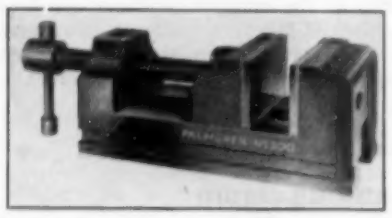
Sizes and design are to specification in this new flanged Nyliner bearing of which typical examples are shown in the illustration. Each unit is split to permit circumferential expansion and contraction without affecting the bore diameter. The integral flange can be interrupted or continuous design except for the compensation split. The sleeve can be provided with an anti-rotation boss or lug, under the flange, to engage a notch or slot in the bearing housing and prevent rotation in the housing.

Volume production has started for major appliance, automotive and other volume users and for special problem applications involving corrosion, vibration, abrasion. The bearing is characterized by its ability to present a tough glazed surface having a low coefficient of friction with little or no lubrication. It will stand up in temperatures to 250 deg. F. It is not subject to attack by most industrial chemicals.

If you write maker identify as IEN-10472

Vise - Hand operated design for a machine table, opens to 3 inches

Source: CHICAGO TOOL & ENGINEERING CO.
8383 S. Chicago Ave., Dept. IEN, Chicago 17, Ill.



Details on request

Jaws measuring 3 in. in width by 1¾ in. in height carry removable steel plates in this new No. 300 Palmgren machine vise. The movable jaw is closed and opened by turning an Acme threaded screw. Machined slots are provided on the two sides of the base to assist in clamping the vise to a table. The vise base is machined square on all faces so it can be employed on either side, on end or up-side-down. It is made of semi-steel castings.

If you write maker identify as IEN-10473

A positive working aluminum offset plate can now be made directly from a translucent original, according to Ozalid Division, 20 Ansco Road, Dept. IEN, Johnson City, N. Y. The new plate can be exposed in an Ozalid machine or in other exposure devices now commonly used in lithography. It then is ready for use in a small offset press. The diazo sensitized positive plate is fed from the translucent original into an Ozalid machine. Then it is swabbed with Ozalith liquid developer, water and Ozalith fixing solution to complete the process generally requiring about two minutes.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

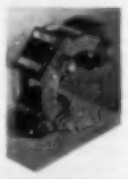
If you write maker identify as IEN-10474

"Best darn welder we ever had till we got this new MAGIC POSITIONER!"

Your *third hand* !

A completely universal holding device for production and welding operations.

Full 360° adjustment on each magnet.
Graduated scale with locking device.
30 or 45 lb. lift permanent Alnico V magnets.



Write Dept. N for literature

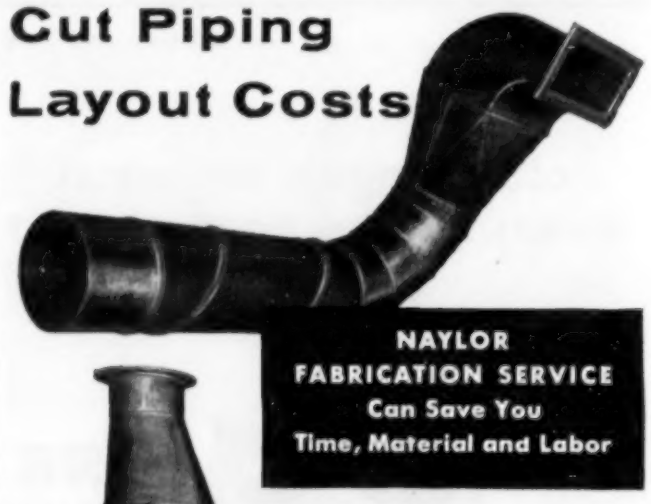
STANDARD PORTABLE CORD COMPANY, INC.
Jamestown, New York

If you write maker identify as IEN-10475

There's a wealth of engineering experience in each R & M *JC* hoist, yet prices start at just $188.00. Big hoist features; unit cast aluminum alloy frame — Weston-type load brake — upper and lower limit switches — heat treated gears and shafts — R & M hoist motor — sealed ball bearings — alloy steel welded link coil chain — forged steel hooks. *Capacities:* 500 to 2,000 lbs. *Speeds:* 34, 17, or 9 f.p.m. *Control:* pendent rope. *Mounting:* hook or Bulldog trolley. For complete details, and address of local distributor, write for Bulletin No. 852. Please mention: INDUSTRIAL MAINTENANCE

take it up with
ROBBINS & MYERS, INC.
SPRINGFIELD, OHIO | BRANTFORD, ONTARIO

If you write maker identify as IEN-10476



By eliminating numerous flanged joints and combining several fittings into one integral unit, Naylor fabrications assure greater efficiency and real economy—from the simplest to the most complex layout. All types of materials fabricated accurately to your specifications. Sizes from 3 to 44 inches in diameter. Thicknesses to ⅜".

Write for Bulletin No. 525.

NAYLOR PIPE

Naylor Pipe Company • 1235 East 92nd St., Chicago 19, Illinois
Eastern U.S. and Foreign Sales Office 350 Madison Ave., New York 17, N.Y.

If you write maker identify as IEN-10477

Now! SLASH WASHROOM EXPENSE 90% and eliminate the mess!

The fastest automatic electric hand dryer ANYWHERE; dries hands or face in **seconds**—deodorizes washrooms!

ELIMINATES JANITORIAL COSTS
CHECKS SKIN IRRITATIONS
REFRESHES STALE AIR

Gray metallic finish with chrome trim. Chrome swivel nozzle. 30-second push-button timer. 110V AC. Easy to install.

Write for Bulletin K-54

OZO HURRICANE
ELECTRIC HAND DRYER

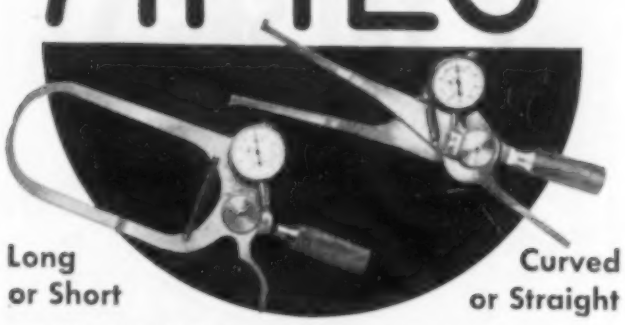
Manufactured and Guaranteed by
Michael Electric Co., Inc. • New Haven, Conn.

STARTLINGLY LOW PRICE!

$79.95

If you write maker identify as IEN - 10478

AMEs



CALIPER GAUGES – Custom-built to fit your exact need. Whether it's measuring the inside dimensions of a pipe, the wall thickness of a casting, the outside dimensions of a rocket – Ames can build the caliper gauge that fills your requirements.

Ames caliper gauges are made of carefully-finished heavy gauge steel and are equipped with an Ames exclusive: a chordal error correcting cam that assures accurate readings. Ames calipers are available with contacts of various shapes – ball, flat or pointed – made of carbide, hardened steel, or sapphire.

Write for your free copy of Ames catalog

Your measuring problems may involve a caliper gauge. If so, send it to Ames – for a quick, profitable solution.

Representatives in principal cities. **B. C. AMES CO.** *33 Ames Street Waltham 54, Mass.*

Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

If you write maker identify as IEN - 10479

FOR FIVE, CLEAR-CUT REASONS IT PAYS TO KNOW PARTLOW

Take RECORDING CONTROLS, for instance

SEND NOW for new condensed Catalog CC. See the seven different Partlow Mercury-actuated Recording Controls — designed to give you automatic process control, continuous temperature indication, permanent records, limit arrangements and hazardous location applications. Select controls tailor-made for your equipment — gas, oil, steam, water or electric. Available with electric or spring-driven chart drives — 24-hr., 48-hr., 7-day or any given cycle . . . 10 temperature ranges from -30° F to 1200° F.

All give you these important Partlow advantages:

1. **DIRECT-ACTING** hermetically sealed Mercury Bulb instrumentation. Positive, precise, sensitive — never temperamental.
2. **INTERCHANGEABLE ELEMENTS** — for quick, easy field replacement, without returning control to factory.
3. **ACCURATE CALIBRATION** — conservatively, within 1% of scale range.
4. **LONG LIFE** — thick-walled capillaries and seamless tubing assure almost indefinite life.
5. **LOW MAINTENANCE** — few moving parts — no need for compensators.

partlow

the pioneer in mercury thermal controls

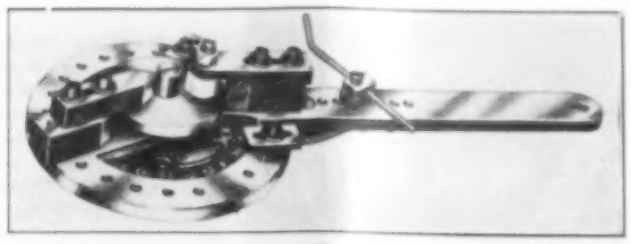
Offices in All Principal Cities

THE PARTLOW CORP., NEW HARTFORD, N. Y.

If you write maker identify as IEN - 10481

Bending - Hand operated machine for small metal strip, wire, tube

Source: LUND PRODUCTS DIVISION
11 Broadway, Dept. IEN, New York 4, N. Y.



Mounts on bench

Strip metal, to ¾ by ⅛ in., thin walled tube to ⅜ in. in diameter, mild steel wire to ¼ in. in diameter, or multiples of smaller sizes, can be formed with this new Curvette machine. A hardened and ground steel roller, mounted on needle bearings, rolls on the outside circumference of the work as the hand lever is swung around the arbor to produce a smooth contour bend. The machine includes an attachment for colling, curving and ring forming wire and tube. The machine is suited particularly for production of samples, maintenance pieces and individual production jobs that do not involve high production. Two of the machines can be employed as a double bending assembly for simultaneous forming operations.

If you write maker identify as IEN - 10482

Soldering - Electric iron with ⅜ in. plug tip rates 150 watts

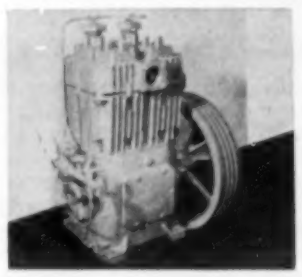
Source: VULCAN ELECTRIC CO.
88 Holten St., Dept. IEN, Danvers 8, Mass.

Features small tip

Catalog 450 is a new design of electric iron for continuous production use, particularly in confined locations. The ⅜-in. tip heats rapidly to operating temperature where it can be held for continuous action. The iron measures 12⅜ in. in overall length. It is fitted with a flared hardwood handle and with a double baffle between the handle and the heated portion. Operation is on 110 or 220 volts as specified to meet requirements.

If you write maker identify as IEN - 10483

Dual control, now available on the compressors manufactured by Quincy Compressor Co., Dept. IEN, Quincy, Ill., permits selection of continuous operation when compressed air demand is high and intermittent operation to satisfy reduced air requirements. In the latter case, a switch shuts off the compressor motor when required tank pressure is reached and starts it again when more air is required. An unloader relieves the compressor when maximum tank pressure is released so it can idle until additional air is required.



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If you write maker identify as IEN - 10484

12 PAGES of STEPPING RELAYS by GUARDIAN

New! Your Free Copy is Waiting - Write for it today . . .

EXAMPLES:

Act now—without cost or obligation get this new 12-page booklet on Guardian Steppers for sequence selecting, circuit selecting, automatic counting, programming, pulse multiplying, pulse dividing, latching, slave and master sets and many other complex applications. Production samples and prices immediately available on all standard steppers. Estimates on specials given upon receipt of your requirements. Write.

RELAYS • SOLENOIDS • SWITCHES • SPECIAL CONTROLS

GUARDIAN ELECTRIC

1620-K W. WALNUT STREET CHICAGO 12, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN INDUSTRY

If you write maker identify as IEN - 10485

HANSEN ONE-HAND TACKER 1001 USES

HERE'S A HANSEN TACKER (Model T-48) — powerful — compact — automatic — zip-zipping staples thru a rubber die on a printer-slotter. Only ONE of 1001 every-day uses where HANSEN tacks — FASTER — BETTER — AT LESS COST.

THIRTY-SIX MODELS — 80 staple sizes (some packed in convenient Vest-Kit) — for a wide range of uses in assembly, production, shipping. Modernize your tacking method!

A. L. HANSEN MFG. CO. REQUEST BOOKLET

5051 RAVENSWOOD AVE. • CHICAGO 40, ILLINOIS

If you write maker identify as IEN - 10486

New Lightweight Grinder is a HEAVYWEIGHT WORKER!

Put a new 7 pound air-powered CP Vertical Grinder in an operator's hands and he'll remove the same amount of metal he formerly did with a 10 pound tool! It's the CP-3190 . . . designed for driving cup wire brushes and grinding wheels, sanding discs, and cut-off wheels! Here are the features that tell why the CP-3190 takes a beating yet is seldom down for repairs:

- **Splined type floating rotor prevents end-plate wear from wheel thrust.**
- **Continuous lubrication afforded by large oil reservoir and built-in lubricator.**
- **Safety governor valve cuts off air supply in the event of possible governor failure.**

Available in speeds to 8000 RPM, in capacities capable of handling 6" cup wheels, and 7" and 9" disc sanding pads and cut-off wheels. *Chicago Pneumatic Tool Co., 8 East 44th St., New York 17, N. Y.*

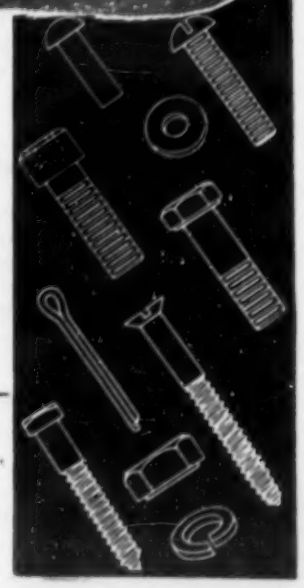
Chicago Pneumatic

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

If you write maker identify as IEN - 10487

STOP CORROSION with HARPER

EVERLASTING FASTENINGS BY THE DOZENS OR BY THE MILLIONS



If you use fastenings of brass, bronze, copper, monel, aluminum or any stainless steel, you can get what you want from Harper. Over 7,000 items stocked—all backed by Harper's advanced metallurgists and skilled engineers. See your Harper Distributor.

HARPER

EVERLASTING FASTENINGS

The H. M. Harper Company
8211 Lehigh Avenue
Morton Grove, Illinois
Please send me Harper Catalog.

Name.....
Address.....
City.....*State*.....

If you write maker identify as IEN - 10488

EASTON®

PLATFORM CARS

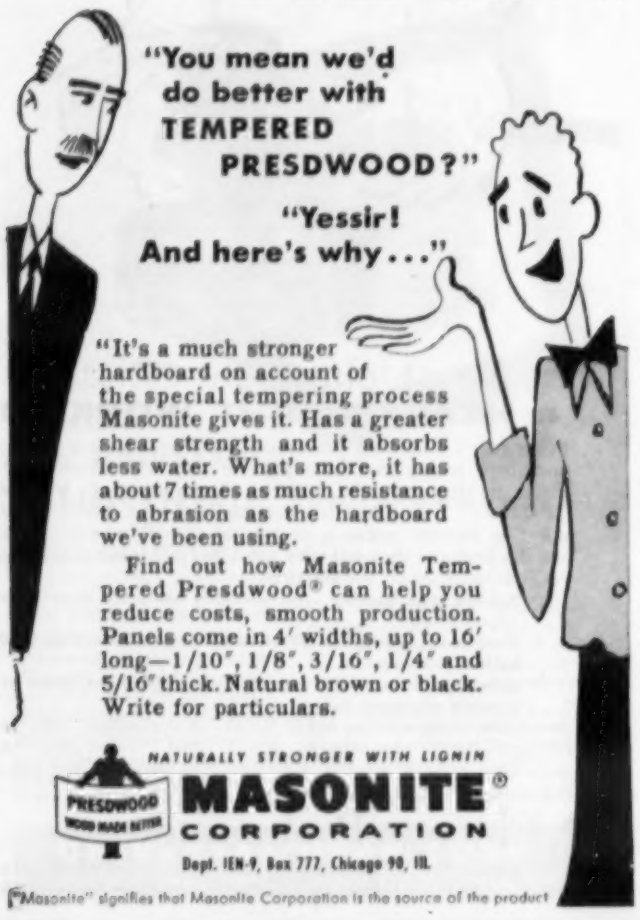
SINGLE AND DOUBLE-TRUCK TO ANY DESIRED CAPACITY

EASTON CAR & CONSTRUCTION CO. • EASTON, PA.

NEW YORK • PHILADELPHIA • PITTSBURGH

A-1044

If you write maker identify as IEN - 10489



"It's a much stronger hardboard on account of the special tempering process Masonite gives it. Has a greater shear strength and it absorbs less water. What's more, it has about 7 times as much resistance to abrasion as the hardboard we've been using.

Find out how Masonite Tempered Presdwood® can help you reduce costs, smooth production. Panels come in 4′ widths, up to 16′ long—1/10″, 1/8″, 3/16″, 1/4″ and 5/16″ thick. Natural brown or black. Write for particulars.

NATURALLY STRONGER WITH LIGNIN

PRESDWOOD WOOD MADE BETTER

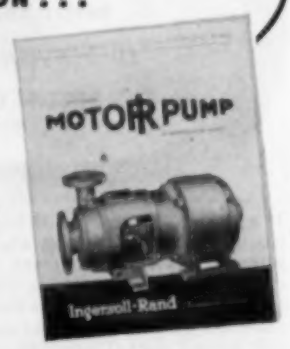
MASONITE® CORPORATION

Dept. IEN-9, Box 777, Chicago 90, Ill.

"Masonite" signifies that Masonite Corporation is the source of the product

If you write maker identify as IEN - 10490

YOUR *Guide* TO PUMP SELECTION...



The new Ingersoll-Rand catalog for pumps in the 5 to 1800 gpm range helps you select the right pump for practically any application.

Performance data, engineering data, weights, dimensions, discharge positions, typical pump problems—there's everything to make pump buying and pump specifying easy. Drawings, photographs, cutaways show you what to look for to get maximum pump efficiency.

Get your copy today. Use the coupon below.

INGERSOLL-RAND 874-9

11 BROADWAY, NEW YORK 4, N. Y.

Please send me your new pump catalog No. 7093-D.

Name.....

Company.....

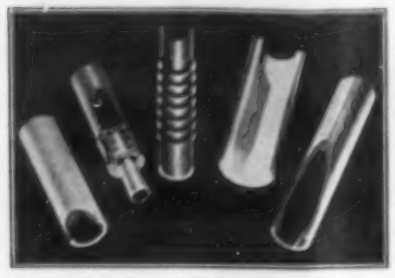
Address.....

City.....Zone.....State.....

If you write maker identify as IEN - 10491

Hose - Laminated fiberglass, silicone impregnated, to specification

Source: ORCHARD INDUSTRIES
Dept. IEN, Hastings, Mich.



Bulletin, "Actionflex"

Actionflex trade names a new hose made by winding single sheets of fiberglass cloth to a required number of laminations and then bonding with a pressure cure. The inner seam is covered by a silicone coating. The outer seam is feathered for no lap.

The hose can be used to connect adjacent vibrating parts, to connect misaligned parts, to dampen and isolate uncontrolled vibration. It provides for expansion and contraction of adjacent rigid piping and provides flexibility for mechanical assembly in places that are hard to reach.

The hose is available in specified sizes, plain or with couplings, either standard or special. It is immune to extreme changes in heat and cold, moisture and certain chemicals. It is available in convoluted form for installations requiring minimum bend radius. It can be supplied with an outer reinforcing jacket or with flexible or rigid scuff covers made of fabrics, plastics or metals.

If you write maker identify as IEN - 10492

Grinding - Abrasive sticks can be cut and shaped with a knife

Source: SANDUSKY ABRASIVE WHEEL CO.
636 W. Ransom St., Dept. IEN, Kalamazoo, Mich.

For contours, beads, grooves, holes

Twenty-two sizes are now available in rectangular, square, cylindrical and triangular sections in the company's recently expanded line of abrasive sticks and blocks. Lengths range from 3 to 8 inches. The sticks are made of abrasive grain imbedded in pliable rubber and can be used dry or with water. They are intended to finish, polish, remove rust, take off burrs, sharpen tools, and hone. Work also can be revolved and a stick held against it for mechanical polishing operations.

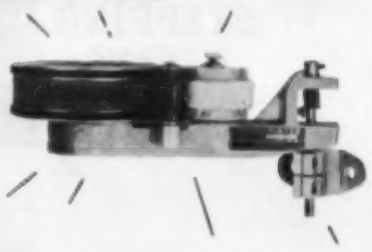
If you write maker identify as IEN - 10493

Caposite is a new rope type insulating material made of asbestos rovings twisted together and retained within a braided reinforcing jacket of asbestos yarn. The rope is available in 100-ft. coils in ½ to 2-in. diameter. It insulates effectively to 1,200 deg. F. It can be removed and reapplied repeatedly at temperatures to 750 deg. F. It is particularly suited to insulate curved and irregular piping, bends, fittings, valves, expansion joints, engine exhausts and for use in furnace door packing. Manufacturer is North American Asbestos Corp., Board of Trade Bldg., Dept. IEN, Chicago 4, Ill.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10494

Get marking perfection and *SLASH COSTS* with the INDUSTRIAL "WHIPPET" MARKER!



Applied to your conveyor line, the "Whippet" offers many unique advantages over other identification methods. The "Whippet" automatically dates, codes, or marks containers, cartons, bags or packages during production runs. It's a non-stop operation that speeds production by eliminating expensive hand stencilling.

Simplicity itself, the printing drum spot prints, turns ½ revolution by friction between "Whippet" and package to positive stop, then repeats the cycle. Self inking, the "Whippet" uses quickly interchangeable rubber type, marks better and faster. You mark containers as you need them.

Let Industrial Engineers prove that high production and precision marking can be yours for less than you might imagine. We welcome the opportunity to solve your marking problems. *Write for Catalog. Dept. IEN.*

Industrial Marking Equipment COMPANY, INC.

454 Baltic Street, Brooklyn 17, New York • MAin 4-2601

If you write maker identify as IEN - 10495

Announcing

TRI-SEG

SINGLE LAYER CALSILITE INSULATION FOR PIPE SIZES UP TO **18"**

LENGTH: STD. 36"
THICKNESSES: 1½", 2", 2½"

See your Ruberoid Calsilite Applicator, or write The Ruberoid Co., 500 Fifth Ave., New York 36, N. Y.

Ruberoid's new Tri-Segmental Calsilite Pipe Insulation offers these advantages:

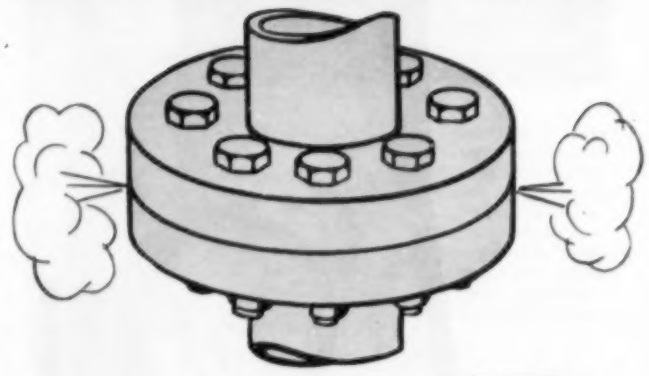
1. Fewer pieces per section—lower labor cost
2. Greater efficiency due to fewer voids
3. Neater appearance—3 smooth pieces
4. Less breakage on job and in transit

The RUBEROID Co.

Asphalt & Asbestos Building Materials

If you write maker identify as IEN - 10496

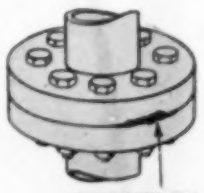
FLANGED JOINTS *which will not* LEAK



1 Make up your flanged joints with Smooth-On No. 3, heavy duty flange and gasket compound. The fine soft iron in this ready-to-use compound seals and protects. It will not bake out, it cannot be dissolved or driven away.

2 Pitted flange faces can be built up true with Smooth-On No. 1, THE iron cement. Finish with a coat of No. 3 on both sides of the gasket, and the joint is secure for very heavy duty.

3 Often a flanged joint may leak but it is impracticable to take it apart, at least not right away. Then force Smooth-On No. 1 into the leak. This hydraulic cement expands as it hardens, plugs any leak. All Smooth-On No. 1 asks is a firm surface against which to expand as it hardens.



SMOOTH-ON

FREE Repair Handbook

New, completely revised 48-page illustrated handbook shows how to stop leaks in pipes, radiators, tanks; how to anchor screws and bolts in wood, metal, concrete; how to make dozens of other time and money-saving repairs. Get a copy from your supply house or ask us to send you one postpaid.

SO-459

SMOOTH-ON MANUFACTURING CO., DEPT. 1

572 Communipaw Ave., Jersey City 4, New Jersey

SMOOTH-ON

If you write maker identify as IEN - 10498

AVAILABLE FROM STOCK FOR IMMEDIATE DELIVERY

acrylic rods and tubes

SIZES AVAILABLE

RODS

3/16"	9/16"
3/16"	5/8"
1/4"	3/4"
5/16"	7/8"
3/8"	1"
7/16"	1 1/8"
1/2"	1 1/4"

TUBES

1/16" wall	1/8" wall
1/4" O.D.	1/2" O.D.
5/16" "	5/8" "
3/8" "	3/4" "
1/2" "	7/8" "
5/8" "	1" "
3/4" "	1 1/4" "
7/8" "	1 1/2" "
1" "	1 3/4" "
1 1/4" "	2" "

CLEAR CRYSTAL METHYL METHACRYLATE — Rods and tubes for industrial, novelty, display, models, and all other fields.

Write for price lists and samples today

Special sizes to order

ACE PLASTIC COMPANY
Precision Extruders and Fabricators

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If you write maker identify as IEN - 10499

FREE SAMPLE KIT . . .

so you can prove to yourself . . .

New Venus Blueprint Pencils

give clearer, more brilliant markings!

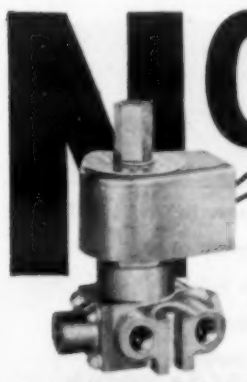
Specially formulated lead is the reason why new Venus Blueprint pencils are best for checking and marking *all* blue or white prints and coarse papers. Leads sharpen to a fine point; never powder, smudge or smear. Opaque markings assure clearer reproduction wth no "ghosts." Markings resist oil, dirt, grime. Leads never affected by sunlight or moisture. Electronically controlled color accuracy. *Free* sample kit includes 2 Venus Blueprint pencils (yellow, vermilion) . . . plus a Venus Drawing pencil. Write on your office letterhead today.

Venus . . . trademark of fine craftsmanship in pencils

American Pencil Co., Hoboken, New Jersey

If you write maker identify as IEN - 10500

NOW



Extremely Compact to meet Critical Space Requirements...

A Midget 4-WAY Solenoid Valve for Controlling Small Double Acting Cylinders

FEATURING: Compactness . . . Rapid Operation . . . Forged Brass Body . . . Ruggedness . . . Low Power Consumption . . . Tight Seating . . . Standard, Watertight or Explosion-Proof Solenoids . . . Simplicity

NOW ASCO has available a complete line of MIDGET 2, 3 & 4-way solenoid valves . . . an important addition to the thousands of types and sizes in the standard ASCO line. Every ASCO valve is backed by years of experience in the field of electromagnetic controls.

Write for Complete Information on the line of ASCO MIDGET VALVES. If our engineering department can help in selecting the valve, send complete data as to your problem.

We also design and manufacture Control Panels to provide "Single Source Responsibility" for the Complete Automatic Control. ASCO Electromagnetic Control Equipment includes Close Differential, Time Delay, and Magnetically or Mechanically Held Relays, Contactors, Automatic Transfer Switches and Remote Control Switches.

ASCO Solenoid VALVES

Automatic Switch Co.

383 LAKESIDE AVENUE • ORANGE, NEW JERSEY

If you write maker identify as IEN - 10501

Timing - Multiple circuit control, motor driven for automatic sequence

Source: JOHNSON FARE BOX CO
4619 N. Ravenswood Ave., Dept. IEN, Chicago 40, Ill.

Details on request

Illustrated is a new self-contained assembly of driving motor, cam operated single and double-throw contacts and a double-throw starting switch to initiate a machine cycle, time the individual cycle intervals and protect by shutting down at the end of a cycle in the event of any malfunction. Circuits are brought out to a multiple-prong push connecting base. Application is in any position. The cycle can be set for any required intervals. The assembly is sealed to prevent interference with the setting and to exclude dirt and moisture. Operation can be maintained in a temperature range between minus 85 and plus 125 deg. F. Resetting for repeat action is automatic. The unit will control the timing of multiple circuits of different voltages. The cycle is initiated electrically or mechanically by momentarily closing the starting switch circuit.

If you write maker identify as IEN - 10502

Scaffold - Pre-fabricated bleacher seats 50 persons in five row unit

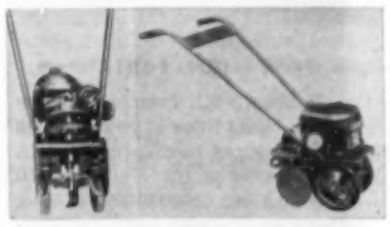
Source: UNIVERSAL MFG. CORPORATION
Dept. IEN, Zellenople, Pa.

Bulletin on request

Welded steel panels and braces, finished in baked enamel or by galvanizing, and spar varnished foot and seat boards make up the assembly of this new prefabricated bleacher unit. The required bolts and nuts, all galvanized, are included. The bleacher can be erected by unskilled labor.

If you write maker identify as IEN - 10503

Three cutter blades are mounted on a plate secured to a vertical shaft, driven by a 2-hp. gasoline engine at 400 rpm., in this new Hummin'-Bird Roto-Hoe. The machine weighs about 45 lb. and measures 9 in. in width. It is intended for use where standard power equipment cannot go because of its size. It will retail for about $100 and is expected by its maker, Roto-Hoe & Sprayer Co., Dept. IEN, Newbury, Ohio, to prove a useful unit around industrial plants.



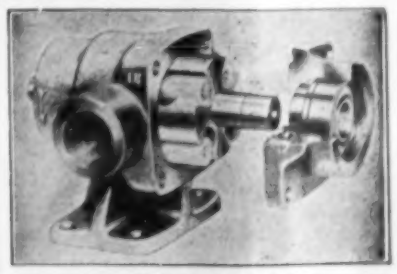
All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10504

A PAID NEWS ADVERTISEMENT BY HYPRO ENGINEERING, INC.

ROLLER PUMP . . .

Hypro Model 4500 with Ni-Resist case handles wettable powder solutions.



New HYPRO Model 4500 Roller Pump with Ni-Resist Case

A new, industrial pump that has demonstrated high efficiency in handling wettable powder solutions in three seasons of field testing has now been marketed by HYPRO ENGINEERING, INC., Minneapolis pump manufacturers. The unit, called the HYPRO 4500 Roller Pump, is equipped with scoop rotor and "roller-type" vanes and embodies unique design features. The roller design is specially suited for use where suspension powders in liquids are pumped.

Equipped with a Ni-Resist Case for longer life and greater efficiency, the HYPRO 4500 Pump is engineered to withstand continuous heavy radial loads through the use of sealed lubricated ball bearings. An additional feature is pressed fit of the stainless steel shaft into the inner race of ball bearings to restrict lateral movement of the rotor, minimizing end thrust and wear of the rotor within the pump.

Nylon or Hy-Car rubber rollers (optional) are self-lubricated by the liquid pumped and are highly abrasive resistant. The HYPRO 4500 Roller Pump is self-priming with wet impeller and will deliver approximately 5¾ gallons per minute at 100 lbs. pressure at 1750 RPM. Pressure range is from 0 to 150 P.S.I. Weight is only 4½ lbs. net.

For complete information and prices on the HYPRO Model 4500 Roller Pump, write Dept. 103, HYPRO ENGINEERING INC., 404 No. Washington Ave., Minneapolis 1, Minnesota.

If you write maker identify as IEN - 10505

More than 20,000 VIKING PUMPS IN THE LAST 25 YEARS
on Littleford Bros. Equipment

You, too, can be assured of top pumping performance. Follow the example of Littleford Bros., Inc., Cincinnati. They know what Viking pumps can really do after incorporating over 20,000 of them on their road construction and maintenance equipment. Service includes handling hot or cold road oils, tars, asphalt, cutbacks and emulsions.

If you are looking for dependable pumps as original equipment, or for individual performance follow Littleford's example and learn more about Vikings.
Write for bulletin 545F.

VIKING AN HONORED NAME IN PUMPING

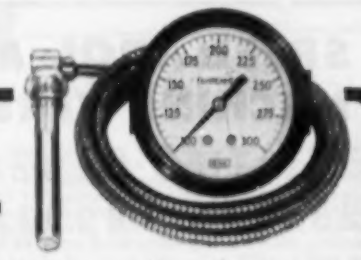
See Our Catalog in Sweets

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

If you write maker identify as IEN - 10506

miniature in size...

GIANT in performance



Gotham remote reading dial thermometers fill big need for hairline sensitivity, constant accuracy

- **DIAL SIZE** — 2½" and 3½"
- **THERMAL SYSTEM** — Stainless steel with bulb only half the size of standard bulb. Mercury actuated.
- **DIAL** — Black or white with contrasting figures and graduations.
- **MOUNTING** — U-shaped clamp assembly.
- **MOVEMENT** — Sensitive, corrosion - resistant, all brass.
- **ACCURACY**—1% of full scale range over middle half of dial.
- **CASE AND RING**—Drawn steel case; brass friction fit ring.
- **RANGES**—Minus 40° to plus 1000°F.

Write today for descriptive literature.

USG

UNITED STATES GAUGE
DIVISION OF
AMERICAN MACHINE AND METALS, INC.
Sellersville, Pa.

If you write maker identify as IEN - 10507

New

P&S

15 and 20 AMPERE SUPER SWITCHES

Designed for . . . Extra Long Life at Full Load . . . Maximum Service . . . Quiet Operation.

Available in Single Pole, Double Pole and Three-Way—with Brown or Ivory Handles

Rated: 15 Amp., 120 Volts A.C., 277 Volts A.C.
20 Amp., 120 Volts A.C. 277 Volts A.C.

May be used on Fluorescent (Inductive) Loads and Incandescent Lamp Loads up to full rated capacity—on Motor Loads up to 80% of current rating of switch.

Drop us a line on your letterhead for complete information

Address Dept. IN

PASS & SEYMOUR, Inc. • Syracuse 9, N. Y.
Offices: 71 Murray Street, New York 7, N. Y.
1229 W. Washington Blvd., Chicago 7, Ill.

If you write maker identify as IEN-10508

The Pow hop off with wasted or impr applied power unless you're careful to keep him caged by observing the simple, sensible practices outlined in the *Champion Maintenance Manual** and by maintaining a plentiful supply of efficient, dependable, long-lasting CHAMPION Lamps.

*Let us mail you a complimentary copy.

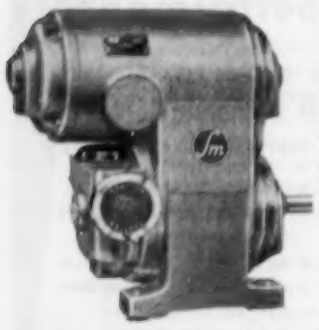
CHAMPION LAMP WORKS
600 Broad Street • Lynn, Massachusetts

CHAMPION Lamps

If you write maker identify as IEN-10509

SPEED-TROL ADDS TO MACHINE VERSATILITY

C. O. Fiedler, machinery manufacturer, selected Speed-Trols to drive a five station extruding machine they designed to provide a continuous flow of material to a biscuit forming roll. Speed-Trols were selected because of their compactness, wide speed range, infinite speed variation and ease of speed control which aided in increasing production, improving product quality, eliminating deformed cookies or biscuits, and reducing costs.



STERLING SPEED-TROL GIVES YOU VARIABLE SPEED CONTROL NECESSARY FOR:

Equipment adaptation to: Sequence synchronization—operators' abilities—load variations due to differences in quantity, quality, weight, size, tension, hardness or shape of material to be processed, machined, conveyed, blended, mixed, etc.

Process control of: Temperature—viscosity—level—pressure—flow—etc.

Time control of: Baking—drying—heating—cooking—pasteurizing—soaking—chemical action—etc.

With Speed-Trol you get the maximum in production, plant efficiency, quality and profit.

20-page illustrated catalog... Sterling Speed-Trol, Slo-Speed, Klosd and Klosd-Tite Electric Power Drives. Write for catalog No. J-422.

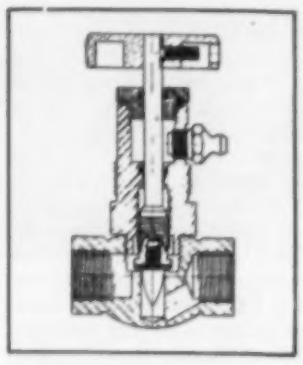
STERLING ELECTRIC MOTORS

Plants: New York City 51; Chicago 35; Los Angeles 22; Hamilton, Canada; Santiago, Chile • Offices and distributors in all principal cities.

If you write maker identify as IEN-10512

Valve - Needle or disc, corrosion resistant for vacuum service

Source: ASSOCIATED VALVE & ENGINEERING CO.
1150 W. Marquette Road, Dept. IEN, Chicago 21, Ill.



Service tested

Sizes in this new Series 1200 Hi-Vac valve are from ¼ to 1¼ inches. The valve can be specified with a bar stock body or with a cast body in sizes from ½ to 1 inch. Pipe thread connections are standard. Body material is Type 316 stainless steel, Monel Metal, Hastelloy or other corrosion resistant alloy. The stem terminates in a Teflon shut-off disc and needle point. This point can be removed if it is not required.

O-rings seal the stem and body cap so no packing box gland is required. The space, ordinarily occupied by packing, is filled with grease through a pressure fitting. Fresh grease is forced into this chamber occasionally to keep the valve in continuous duty.

If you write maker identify as IEN-10513

Conduit Fitting - Junction box forms support base for pipe standard

Source: HOPE ELECTRICAL PRODUCTS CO.
338-A Wilson Ave., Dept. IEN, Newark 5, N. J.

Malleable iron

Conduit or pipe uprights for overhead lighting, signaling, loud speakers, alarms, can be assembled with the aid of this new combination junction box and pipe base. Four sizes are available to take 2 to 4-in. threaded conduit, or pipe, on which the equipment is mounted and through which wiring is led down to the box for splicing into supply circuits leading up through the bottom. A flanged base, integral with the box, is drilled for anchor bolts. The gasketed box cover is held in place by four screws.

Note—This item is published to correct our previous description, IEN-7983-54, in which we referred to the new box as a pipe fitting and said, in error, it was cast iron. Ed.

If you write maker identify as IEN-10514

American Hard Rubber Co., 93 Worth St., Dept. IEN, New York 13, N. Y., announces addition to its lines of compression and transfer molded parts made of glass reinforced plastic. Production is based upon loading a mold or transfer pot with a major charge of putty-like resin glass compound, forming to shape by closing the press, then curing under heat and pressure. Properties of the glass reinforced plastics can be varied, depending upon the method of modeling, the resin, the filler, the quality and type of glass fiber.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

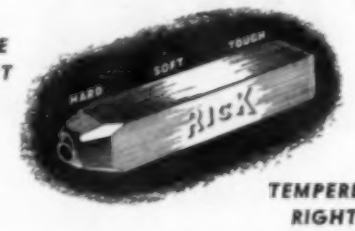
If you write maker identify as IEN-10515

SUPER SAFE STAMPS

INVENTED IN 1923

MADE TO SAME SPECIFICATIONS AS DEMANDED BY U. S. GOVERNMENT

MADE RIGHT

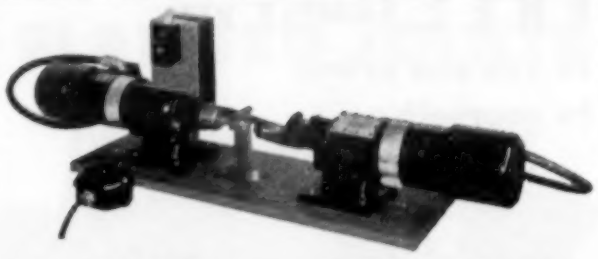


TEMPERED RIGHT

WE SPECIALIZE IN STEEL MARKING DIES, ENGRAVED DIES, DESIGNS AND TRADE MARKS

PITTSBURGH STENCIL & TOOL CO.
400 SCOTLAND STREET
PITTSBURGH 12, PA.

If you write maker identify as IEN-10516



Standard Opposed Drilling Machine

THIS Standard Govro-Nelson Drilling Machine is supplied completely wired so that the two Automatic Drilling Units work simultaneously from a momentary contact palm or foot switch with a dowel hole for fixture location. *(Fixture not included.)*

With the Units adjustable endwise up to 18" between chucks, it can be used as a centering machine. By mounting a simple hand-index fixture, it can be used for drilling wire holes in cap screws. Two opposed holes can be drilled at once. A riser plate permits the drilling of offset holes.

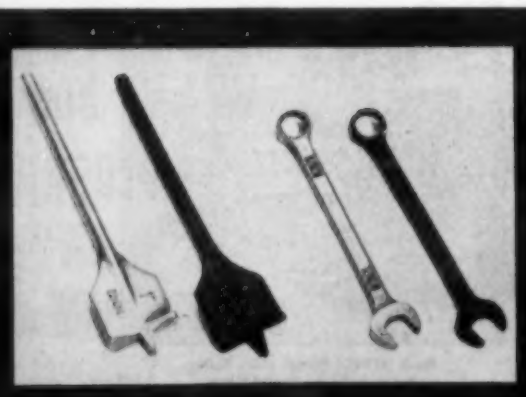
Why not drill two holes at the cost of one with this standard, versatile machine? Write for literature, sending samples and part prints.

GOVRO-NELSON CO.
1933 Antoinette
DETROIT 8, MICH.

Automatic **DRILLING UNIT**

If you write maker identify as IEN-10510

ALMCO
Supersheen
SPEED FINISHING
ALBERT LEA MINN



BARREL FINISHING *Descaling* COMPOUNDS

Recognized as the finest available, Supersheen offers a wide variety of *Descaling Compounds* that are "tailored to fit" your specific requirements. They provide, with various types of abrasive chips, accurately controlled processing — they produce clean surfaces and true colors — they are economical — and achieve consistently superior results.

Send today for complete details of Almco Supersheen Compounds. Over 40 different standard types.

ALMCO *Supersheen*
AMERICA'S LARGEST MANUFACTURER OF ADVANCED BARREL FINISHING EQUIPMENT - MATERIALS AND COMPOUNDS
ALBERT LEA, MINNESOTA

If you write maker identify as IEN-10517

Great Motors from Great Britain!

Newman Totally Enclosed Fan Cooled Squirrel Cage Motors

- **world-famous NEWMAN MOTORS**
- **net savings up to 40%**
- **immediate delivery**
- **unconditionally guaranteed**
- **superior design— to N.E.M.A. standards**
- **offices in principal cities**

For the first time, the complete world-famous line (2 million installed in 62 countries since 1935) of NEWMAN MOTORS, built to N.E.M.A. standards, is offered to the American Market in sizes up to 230 H.P.

These are new, high-quality motors equipped with the prestige of a great motor-making company. Vast savings, dependability, unconditional guarantee are offered to American buyers.

Any motor sent free and without obligation for examination and testing. Factory stocks at New York, Chicago, Savannah, Houston, Portland, San Francisco and Los Angeles.

Write for a catalog and price list to-day

Newman INDUSTRIES (AMERICA) INC.
[illegible] BROAD STREET, NEW YORK 4, N.Y.

If you write maker identify as IEN - 10518

When it comes to Welding Come to MARQUETTE

For *all* your needs . . . Marquette offers the newest, most *complete* line in the industry today:

Utility AC Welders—2 Models

New "Instant Arc"—the only fully "dead Cabinet" AC Welders—4 Models

AND NOW . . .

Heavy Duty Industrial AC Welders—6 Models

Rectifier Type DC Welders—5 Models

Gas Driven AC Welder and Power Plant Combinations—2 Models

Welding electrodes for all applications

Oxy-Acetylene Welding and Cutting apparatus, Welding Accessories, Fluxes and Supplies

Write for full details today

MARQUETTE MANUFACTURING CO., INC.

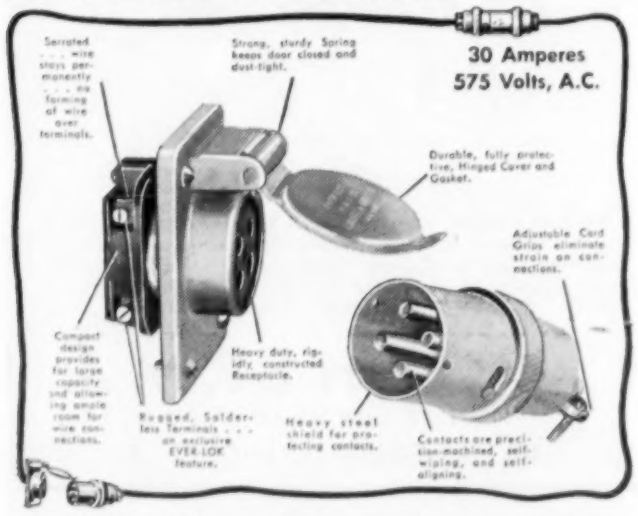
307 East Hennepin Avenue • Minneapolis 14, Minnesota

If you write maker identify as IEN - 10519

EVER-LOK®

R&S RECEPTACLES, PLUGS AND CORD CONNECTORS

. . . FOR HEAVY-DUTY UTILITY AND INDUSTRIAL APPLICATIONS



R&S Ever-Lok heavy-duty plugs and receptacles carry full-rated load currents safely and with the greatest of ease under severe operating conditions. Industry and Utilities specify these rugged cord connectors because Ever-Lok has the right combination of features for heavy-duty service applications.

Outstanding Ever-Lok advantage is an automatic locking grip that prevents faulty contacts and accidental disconnection in service. Every Ever-Lok plug grips fast and holds forever despite every tug or pull—yet separates instantly with a finger-tip twist of the powerful bayonet type lock.

Good products need good connections—and Ever-Lok always provides a happy ending to cord connector problems. *Write for literature EL-34*

• R&S Ever-Lok complete lines are available from Midget type 10 amperes to 200 amperes heavy service types . . . standard or reverse service . . . fused and non-fused types. Also a complete Ever-Lok Multi-circuit line from 2 to 12 poles, for sound and control equipment.

Representatives in Principal Cities.

Midget — 10, 20, 30 Amperes — Heavy-Duty Service

RUSSELL & STOLL COMPANY, INC. • 125 BARCLAY STREET, NEW YORK 7, N. Y.

RUSSELL & STOLL

PRECISION-BUILT ELECTRICAL EQUIPMENT—SINCE 1902

If you write maker identify as IEN - 10521

Lapping - Roll type machine for cylindrical work, 1/8 to 6 inches

Source: SPITFIRE TOOL CO.
2931 N. Pulaski Road, Dept. IEN, Chicago 41, Ill.

No skill required

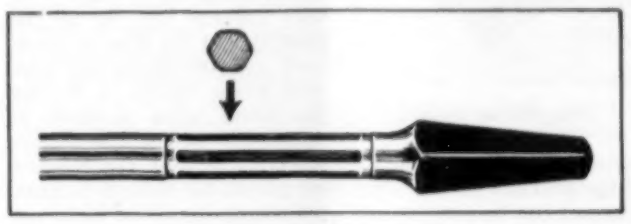
Pins, rods, plugs made of glass, metal, plastic can be lap finished on this new No. 12 roller lapping machine. It consists of parallel ground cast iron rollers mounted in adjustable bearings and arranged for drive by a ½-hp. motor supplied by the user. The rolls measure 12 in. in length. One is 3 in. in diameter and the other is 6 inches. The larger unit is vented to minimize temperature rise in the work.

Both rolls rotate in the same direction and at the same rotating speed. Speed can be varied by means of four-step V-belt sheaves to suit given work. Assembly is on a base standing 38 in. above the floor and occupying a floor space of about 23 by 31 inches. The operation consists of spreading abrasive compound over both rolls, starting the motor and bearing down upon the work with a notched fiber stick.

If you write maker identify as IEN - 10522

Wood Working - Boring bit with both square and hexagon shanks

Source: IRWIN AUGER BIT CO.
Dept. IEN, Wilmington, Ohio



For general utility use

Application of this new 2-Way "Hex" Shank wood bit can be made in a bit brace and also in a ¼ to ½-in. electric drill equipped with a chuck. The conventional square taper shank applies in a bit brace chuck. It can be cut off, just beyond its shoulder, to present a hexagon section on the remaining portion of the bit shank for application in a chuck in either a bit brace or an electric drill. Bit sizes range from ¼ to 1⅛ inches. The bit design includes a conventional screw point. The bit is available without the square shank to specification.

If you write maker identify as IEN - 10523

Brooks Oil Co., 934 Ridge Ave., Dept. IEN, Pittsburgh 12, Pa., has discovered that its lubricant, for use on slides, can be added to hydraulic oils to stop leakage caused by shock or vibration in hydraulic equipment. The lubricant is added to straight mineral oils, or other petroleum products employed as hydraulic fluids, in the ratio of 1 to 1 to 7. The additive seeps out and fills points where the hydraulic fluid alone could leak.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10524

LOAD & METER

100 TO 5000 POUNDS PER HOUR

A new "Metering Loader" will meter any small pieces ranging from "BB" Shot to Washers, Buttons, Bolts and Bowling Pins.

These parts can be loaded at any rate between 100 to 5000 pounds per hour through the use of a variable speed drive having a 20 to 1 variation.

This loader can be made to distribute the work evenly across the full width of the conveying mechanism in the appliance being fed. It will handle parts as small as 1/16" thickness or diameter.

The standard hopper, which empties itself, holds up to 1000 pounds of average size bolts weighing approximately 200 pounds per cubic foot.

The "Metering Loader" can be built to meet special conditions. It may also be used as an elevator only. ECONOMY in—Initial Cost, Floor Space Required, Installation and Operation are engineered into the Industrial Heating Equipment Company "Metering Loader."

Write Today for Details

INDUSTRIAL HEATING EQUIPMENT CO.

3574 Fremont Place — Detroit 7, Michigan

If you write maker identify as IEN - 10525

THIS WASH FIXTURE HAS NO FAUCETS

- One Sprayhead replaces 4 faucets, has no moving parts—provides tempered water supply for 2 persons with perfect sanitation.
- Self-Flushing Bowl cuts janitor labor. Bowl flushes continuously when DUO is in use. No collection of dirty water.
- Foot-Control provides spray of clean water at a touch of the foot. Supply cut off instantly as foot is removed. **Hands touch nothing but clean running water.**

TOPS FOR SANITATION, CONVENIENCE, GOOD WILL

Bradley DUO-Washfountains are the last word in modern, *sanitary*, small washroom facilities. Foot-control provides the ultimate in protection against communicable disease germs, and maximum convenience as well. People *like* to wash at Bradley DUOS. They know they are sanitary and *safe*.

Installation is simple and economical. One DUO takes the place of two ordinary basins. Piping connections are reduced, floor and wall space saved. Continued savings result from lower water consumption and simplified maintenance. Available with white or green vitreous enamel finish or in stainless steel.

BRADLEY Duo Washfountains — *Write for Bulletin K958*

Distributed Through Plumbing Wholesalers

Bradley Washfountain Co., 2219 W. Michigan St., Milwaukee 1, Wis.

If you write maker identify as IEN - 10526

NEW STARRETT NO. 221

Patented

HI-PRECISION OUTSIDE MICROMETER CALIPER

Range 0-1 Inch By Ten-Thousandths

- Speeds measurements—reads direct in ten-thousandths—no Verier.
- Gives exactly correct spindle pressure automatically.
- Gives every mechanic gagemaker skill.
- Insures right measurement every time.

New Starrett Hi-Precision Micrometer No. 221 reads direct in ten-thousandths of an inch—makes every measurement with exactly the right spindle pressure. The inner thimble with every thousand numbered is used to read thousandths in the conventional way. The outer thimble with large, widely spaced, number graduations gives direct readings in ten-thousandths. Write for descriptive folder. Address Dept. N.

Starrett® "WORLD'S GREATEST TOOLMAKERS"

MECHANICS' HAND MEASURING TOOLS AND PRECISION INSTRUMENTS • DIAL INDICATORS • STEEL TAPES PRECISION GROUND FLAT STOCK • HACKSAWS, BAND SAWS and BAND KNIVES

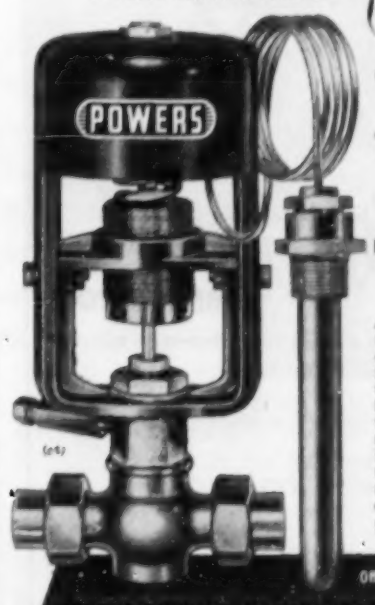
THE L. S. STARRETT COMPANY, ATHOL, MASSACHUSETTS, U. S. A.

If you write maker identify as IEN - 10527

CUT COSTS

REGULATE TEMPERATURE OF

WATER AND OIL HEATERS
VATS • TANKS • DRYERS
METAL FINISHING PROCESSES
JACKET WATER COOLING
AND MANY OTHER USES



with POWERS No. 11 Self-Operating TEMPERATURE REGULATOR

Easy to Install

DEPENDABLE • ECONOMICAL

Controls temperature of liquids or air

A premium quality regulator with these features that give better control and years of trouble-free service: has over-heat protection; valve stem lubricator helps give more accurate control, reduces packing gland maintenance; OILITE thrust bearing makes it easy to adjust temperature; available, when required, with easy to read 4" dial thermometer.

Write for Bulletin 329

Offices in 60 Cities, See Your Phone Book

THE POWERS REGULATOR CO., Skokie, Ill.

Over 60 Years of Automatic Temperature and Humidity Control

If you write maker identify as IEN - 10528

AUTO-DIESEL PLUNGER RINGS have lasted . . . OVER 122 Days

Auto-Diesel hardened steel Plunger Rings have set a new and much higher standard of performance. In actual use these rings have lasted over 122 days—they were immersed in molten zinc over 800 hours. This is not unusual—the useful life is measured by MONTHS—not by the HOUR. They were especially designed for die casting machines or casting zinc parts. They are made of hardened steel, dieloy cast iron or cast iron. They will enable you to reduce costly down time to the minimum. It will pay to write for further information.

We specialize in making Quality PISTON RINGS in SMALL Runs. Give FAST SERVICE at ATTRACTIVE PRICES

Do you need PISTON RINGS in small quantities? We specialize in small runs and can give you FAST service. In addition we can sell at ATTRACTIVE PRICES. The reason is that we are set-up for this type of business—have hundreds of customers that we have served for years. Can make up to 35" diameter for original equipment and for replacement in compressors, hydraulic cylinders, valves, etc. Will make circular parts to your specifications. Write for prices.

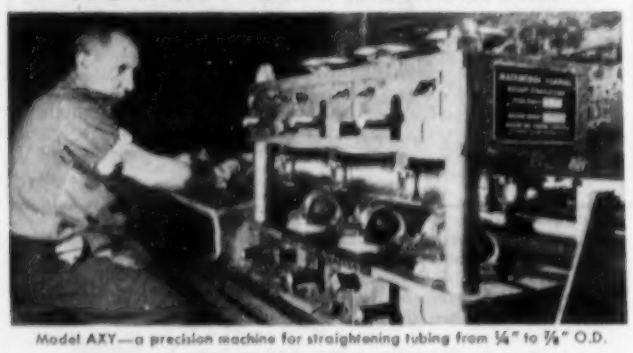
Write to

THE AUTO-DIESEL PISTON RING CO.
3139 Superior Avenue • Cleveland 14, Ohio
"RINGS and SHAPES *Since* 1921"

If you write maker identify as IEN - 10529

If you want tubing *STRAIGHT AS AN ARROW*

you have a job for a MACK-HEMP *guideless* ROTARY STRAIGHTENER



Model AXY—a precision machine for straightening tubing from ¼" to ⅞" O.D.

Constantly, more and more manufacturers of varied products which include pipe and tubing (ferrous and non-ferrous) are placing Mack-Hemp guideless Rotary Straighteners in their production lines with substantial advantage. These machines are available in 12 sizes to handle the tiniest tubing (1/16" O.D.) to large pipe up to 15" O.D., meeting straightness and roundness specifications of unusually close tolerances.

Why not investigate what these Mack-Hemp guideless Rotary Straighteners are accomplishing for others—evidenced by many case histories in our files? They can probably solve your problem also! Send the coupon below for Bulletins No. 52 and S-7265.

Model AX—used for straightening pipe ¼" to 1¼" O.D.

MACKINTOSH HEMPHILL CO.

Machinery Department, Ninth & Bingham Streets, Pittsburgh 3, Pa.

Makers of the Rolls with the Striped Rod Wobblers

☐ Please send me Bulletins No. 52 and S-7265 giving case histories and detailed information about MACK-HEMP guideless Rotary Straighteners.

I am interested in straightening: _____ Type & Size of tubing

Name _____ Title _____

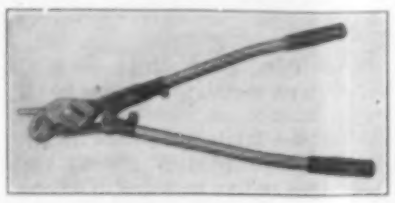
Company _____

Address _____

If you write maker identify as IEN - 10531

Connector - Hand compression tool to apply electric service connectors

Source: THOMAS & BETTS CO.
60 Butler St., Dept. IEN, Elizabeth, N. J.



A lineman's tool

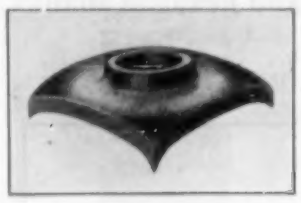
Type UT-5 designates a new lever operated toggle tool to produce a square shaped compression for application of the company's new distribution and service connectors. The tool weighs 5 lb. and will set the connectors on conductors including No. 8 to No. 2 stranded and solid copper, No. 6 solid to 2/0 stranded aluminum and No. 6 to 1/0 ACSR.

The tool employs three interchangeable die blocks each containing four installing grooves. The blocks are marked with the key letter of the connector catalog number so a lineman in the field can select the correct block without referring to drawings or a catalog.

If you write maker identify as IEN - 10532

Fastening - Spring steel nut digs in and locks on body corners

Source: WATERBURY PRESSED METAL CO.
300 Chase Ave., Dept. IEN, Waterbury 14, Conn.



Samples on request

Spring steel is cut and shaped to a concave square section with pointed corners and is formed at the center in this new P-M nut. Threads are cut in the opening and the steel is hardened and tempered. The concave shape assists in finding the center when a screw is turned into the nut. The pointed corners dig in and prevent the nut from turning. The concave shape provides spring action that causes the threads to grip. The nut can be removed and used repeatedly. Four sizes are from 6-32 to 10-32.

If you write maker identify as IEN - 10533

Power operated turning forks, applied on a rider type fork truck by Raymond Corporation, 35-125 Madison St., Dept. IEN, Greene, N. Y., are employed to handle tote boxes between an automatic screw machine department and a cutting oil centrifuge. The truck reaches beneath the automatic machine, "snakes" the filled tote box out, transfers its forks into channels welded on the bottom of the box and elevates the box for traveling. At the centrifuge machine, it rotates the box to dump in the turnings and oil. Then it returns the box to upright position and moves back to the screw machine to deposit the box for another.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10534

TUBING BY SUPERIOR SAVES 33% ON PRODUCTION COST OF AUTOCLAVE COVERS

Autoclave Engineers, Inc. of Erie, Pa. made a 33% saving on covers of "dash pots" for pressure-testing materials by using tubing as a component. Stainless steel forgings used in covers of these Magne Dash* autoclaves had to be machined and deep drilled—time-and-material wasting operations. Superior cold drawn stainless tubing Type 316 eliminated this expensive work and reduced scrap loss almost to zero. At the same time, minimum yield strength was raised from about 40,000 psi to 100,000 psi. Easily threaded, corrosion resistant Type 316 tubing—or one of our more than 55 other analyses—may well end one of *your* problems. Send for our free Catalog Section 20 on Stainless Steel Tubing, and tell us about your tubing needs.

*Licensed by Standard Oil Company (Indiana) U.S. Patents 2631091 and 2661938

All analyses .010" to ⅝" O.D.
Certain analyses in light walls up to 2½" O.D.

SUPERIOR TUBE COMPANY
2016 Germantown Ave., Norristown, Pa.

Superior Tube
THE BIG NAME IN SMALL TUBING

If you write maker identify as IEN - 10535

Stop SKIN TROUBLES

cleaner hands with . . .

degerm® LIQUID SOAP

WITH ACTAMER*

Germs cost you money . . . through illness and idle machines. Reduce that expense by providing *degerm* Liquid Soap with Actamer* for daily use throughout the plant. It's a real germ-killing soap that destroys up to 97% of all bacteria on the skin when used regularly . . . and a protective film remains on the skin for hours. *Degerm* costs little more than ordinary soap. It will not irritate the skin.

Write today for prices and more information.

*Registered, Monsanto Chemical Company

HUNTINGTON LABORATORIES
HUNTINGTON LABORATORIES, INC.
Huntington, Indiana • Philadelphia 35, Pa. • Toronto 2, Ontario

If you write maker identify as IEN - 10536

AN 659 TERMINALS

Prompt Delivery

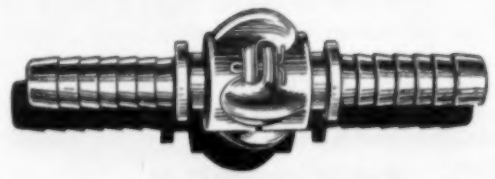
Buy

Sherman terminal lugs to AN659 Specifications for No. 8 to 4/0 Cable sizes are now being manufactured for prompt delivery. Contracted from higher grade electrolytic copper, electro tinned, marked with wire size and "Sherman" Trade Mark. Write Dept. E.E. today for full information.

H. B. SHERMAN
MANUFACTURING CO.
BATTLE CREEK • MICHIGAN

If you write maker identify as IEN - 10537

"AIR KING"



QUICK-ACTING UNIVERSAL TYPE

HOSE COUPLING

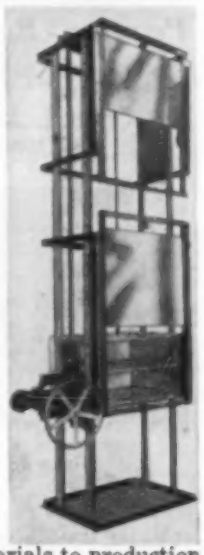
A strong, durable coupling for quick, tight connections on field or factory air hose. Plain design — no parts to get out of order or clogged with dirt. Made in hose ends and male and female threaded pipe ends. Completely interchangeable. Patented safety locking device is proof against vibration and rough handling. Malleable iron (rustproofed) or bronze.

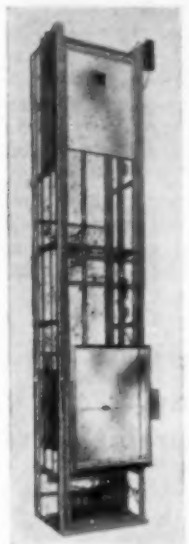
From Your Hose Supplier or Industrial Distributor

DIXON VALVE & COUPLING CO.
PRODUCERS OF *The Quality Line* COUPLINGS • NIPPLES • MENDERS • CLAMPS
"BOSS" "G.J.-BOSS" "DIXON" "KING" "AIR KING" "DIX-LOCK"
PHILADELPHIA, PA. BRANCHES CHICAGO • BIRMINGHAM • LOS ANGELES • HOUSTON

If you write maker identify as IEN-10538

Electric or Hand Powered MATOT DUMB WAITERS





- Save Time
- Save Labor
- Relieve Elevators

Speed parts and materials to production lines . . . finished products to storage or shipping areas . . . with Matot "not-so-dumb" Dumb Waiters.
Matot Dumb Waiters take up little room . . . involve only light construction . . . and can be either hand or power operated . . . Speed reducers, magnetic brakes . . . Galvanized or stainless steel cabs.

See Sweets Catalog File—or write for FREE literature.

D. A. MATOT, Inc.
1533 ALTGELD STEET • CHICAGO 14, ILLINOIS

If you write maker identify as IEN-10539

Good visibility speeds operation of new LE ROI FRONT END LOADER

● The operator can see his work with the bucket down, with bucket up, and when he's traveling from one place to another in your plant. He can see what he's doing at *all* times, so he can handle bulk materials fast and efficiently —often at lower cost—with the Le Roi Company's new Front End Loader.

He can maneuver easily in and out of boxcars, around pillars and sharp corners because he can turn this machine in a radius of only 74 inches. He can rock the 12 cu. ft. bucket into the load and heap it full in just one pass. He can lift the bucket to full height and lower it in just eleven seconds. He can lift, load, dump, or shift gears with a flick of his wrist—controls are mounted right at the steering wheel. All this saves time, and helps to keep materials handling costs low.

This loader weighs 5250 lbs., is powered by a husky Le Roi gasoline engine. Write for complete details on this new Le Roi TL-50 Front End Loader.

TRANSO DIVISION LE ROI

LE ROI COMPANY
A Subsidiary of Westinghouse Air Brake Co.
TRANSO DIVISION, MILWAUKEE 14, WISCONSIN
Plants: Milwaukee · Cleveland — Greenwich — Dunkirk, Ohio
Coldwater, Michigan

Manufacturers of air compressors, rock drills, engines, loaders and mixers.

If you write maker identify as IEN-10541

Lighting - Fluorescent lamp rates 100 watts, 7,000 initial lumens

Source: SYLVANIA ELECTRIC PRODUCTS INC.
Dept. IEN, Salem, Mass.

For "more" light

Color is standard cool white and rated life is 7,500 hr. on 3-hr. cycle for this new 8-ft. fluorescent lamp. It rates 100 watts with operating current at 0.815 amp. and operating input at 140 volts. It mounts base recessed double contacts. It is packaged in standard quantities of 12 with list price at $3.85. The lamp is designed for application in well ventilated fixtures, not those that are totally enclosed. It is suited for indoor or outdoor installation, as desired.

If you write maker identify as IEN-10542

Marking - Colored lead pencil for checking on blue and white prints

Source: AMERICAN PENCIL CO.
Willow Ave. & 5th St., Dept. IEN, Hoboken, N. J.

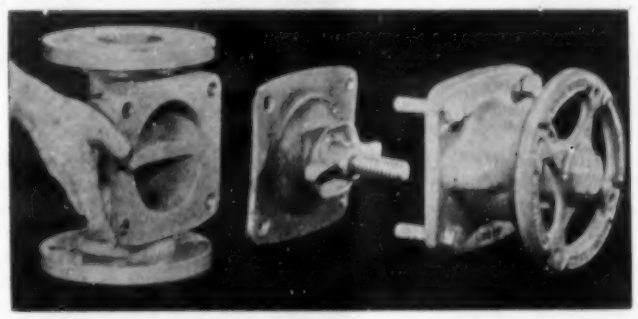
Ask for free Venus B/P Sampler

Eight colors include black, two shades of blue, green, red, vermillion, white yellow in a new line of blue and white print checking and marking pencils. The new unit can be used also to advantage on coarse tooth paper. The mark is bright in color, insoluble and makes a good contrast with the background. It is resistant to oil, dirt and grime, is unaffected by exposure to sunlight or moisture. The lead does not reflect light and the opaque marking does not result in "ghosts."

The pencil can be sharpened to a fine point and will not powder or smudge. An eight color draftsmen's pack assortment includes a special obliterating blue pencil to eliminate white marks on blue prints.

If you write maker identify as IEN-10543

Rubber plastic compound is now employed in manufacture of a line of 3 and 4-in. pipe fittings and of a diaphragm type



valve body by United States Rubber Co., 1230 Sixth Ave., Dept. IEN, New York 20, N. Y. The material is known as Uscolite. It is suited for handling food products, sensitive chemical solutions and acids destructive to ordinary pipe. The new equipment supplements the previous 2-in. maximum size.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10544

● You'll be just as comfortable this winter as you would be in Florida, if you follow this simple suggestion. Put a fast-venting Heat-Kwik Super-Silvertop Steam Trap on every unit heater. Super-Silvertop Heat-Kwiks bring unit heaters up to maximum heat output in 2½ minutes—save hundreds of dollars by letting you turn on steam as much as a half hour later every morning. Put them on every unit heater to keep your plant warm, reduce unit heater corrosion, and to save on fuel bills. See your jobber today.

The V. D. ANDERSON COMPANY
subsidiary Chesapeake Industries
1966 West 96th Street • Cleveland 2, Ohio

FREE — *36-page book shows how to select steam traps for unit heaters.*

SUPER-SILVERTOP STEAM TRAPS

If you write maker identify as IEN-10545

NEW — FAST — SAFE — ECONOMICAL INLAND SEAL-LESS STRAPPING

Inland Seal-less Strapping is the new trend that offers many advantages over the conventional strapping methods. You have only the strapping itself to work with — no seals — no time or cost of applying seals. The application of Seal-less Strapping is accomplished with a compact, easy-to-operate machine. A simple operation tensions the strapping and mechanically interlocks the two ends so the joint will test from 77% to 86% of the strength of the strapping itself. Seal-less Strapping has, in many cases, permitted the use of lighter and less costly packing materials at an added saving.

INLAND Complete Packaging Service

—includes round steel strapping and machines, stitching wire and machines, bale ties, tag fasteners, etc.

Write for literature on this cost reducing method, without obligation.

A few select territories still open— Inquire, giving qualifications

INLAND WIRE PRODUCTS CO.
3963 South Lowe Avenue Chicago 9, Illinois
Branch Offices and Warehouses
Oakland, Calif. Los Angeles, Calif.

If you write maker identify as IEN-10546

TOOLS ...via Graybar

SEND FOR THIS FREE BOOKLET

Portable electric tools are key items in increasing output. — and Thor wraps up the whole story in this 32 page, illustrated booklet. See how you can eliminate costly hand operations, cut costs and time with power tools. "*How To Select Electric Tools*" is chock-full of details about all types . . . from electric drills to electric portable grinders. Select the right electric tool to meet each need. Send for this booklet today!

AND THIS KLEIN BULLETIN!

There's a job for every plier . . . and a Klein plier for every job! Especially designed for production, maintenance and repair work, these quality pliers are described in full detail in this handy bulletin. Send for your copy today. Contact: Graybar Electric Co., Inc. Executive offices: Graybar Building, 420 Lexington Ave., New York 17, N. Y.

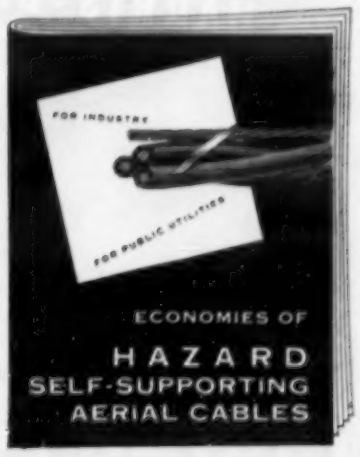
453-129

Call Graybar *first* for . . . Everything Electrical GraybaR ELECTRIC COMPANY

If you write maker identify as IEN-10547

Q. Where can I get the full story on Self-Supporting Aerial Cables?

A. You'll find the entire story in the new Hazard Self-Supporting Aerial Cable Book—complete with comparative installation costs, case histories and full technical data.



Write today for your copy of this book (Bulletin H-458) to Hazard Insulated Wire Works, Division of The Okonite Company, Passaic, N. J.

HAZARD *insulated cables*

2568

If you write maker identify as IEN - 10548

SAVE on Cut-off Costs!

SHOWN—Model M equipped with bar feed

. . . with this FULLY Automatic Equipment

- Our models M, D and J feature simplified hydraulic controls for both full and semi-automatic operation. Minimum maintenance, maximum blade life assured!
- Top results are yours on all jobs whether high speed or regular blades are used.
- Capacities range from 9" x 18" to 24" x 24".
- Also available: Model H hinge-type, economy model (9" x 16" capacity) and a complete range of accessories.
- Send today for literature on this line-up of superior metal cutting band saws.

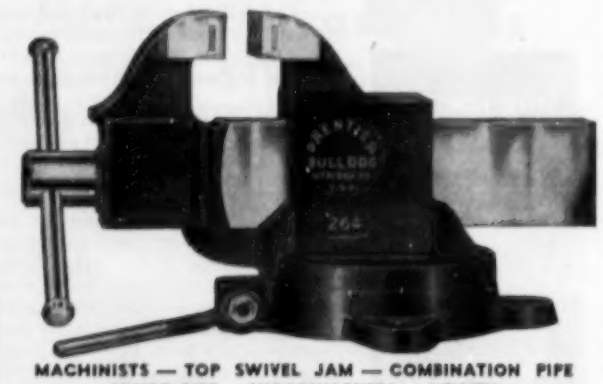
W. F. WELLS & SONS
Three Rivers, Michigan

If you write maker identify as IEN - 10549

PRENTISS

"BULL DOG" VISES

Backed by 86 years of time-proven acceptance by industry.



MACHINISTS — TOP SWIVEL JAM — COMBINATION PIPE HINGE PIPE — WOODWORKERS — UTILITY

Renewable steel jaws that cannot work loose, swivel base with a positive lock plus other features that give you vises that will stand the most severe tests. Send for THE NEW PRENTISS CATALOGUE TODAY.

Your Industrial Distributor can supply you

PRENTISS VISE DIVISION
OF THE CHARLES PARKER CO., MERIDEN, CONN., U. S. A.

If you write maker identify as IEN - 10550

Park | cars • trucks busses • all types vehicles

The HARRIS-BARRIER Way

SAVE ON
- Space
- Time
- Money
- Installation
- Maintenance
- Replacement

Large corporation parks cars compactly, smoothly with Harris-Barriers.

MAIL COUPON TODAY

Give dimensions and shape of your parking area. Harris-Barrier engineers will prepare *your* engineering kit without obligation!

Name_____
Title_____
Company_____
Address_____
City State
Area Description:
Width____ Length____ Shape____

Park 1 Car to 10,000 Cars Quickly, Efficiently!

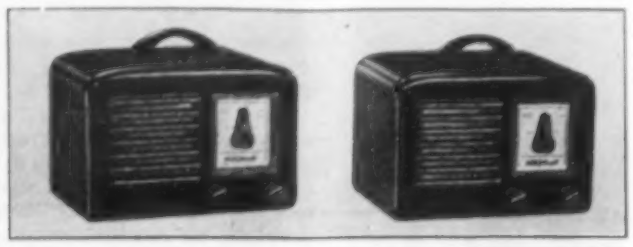
HAR-BAR

HARRIS-BARRIER, INC.
Parking System Engineers • 3301 N. Tibbs • Indianapolis 22, Indiana

If you write maker identify as IEN - 10551

Communicating - Telephone plugs into plant electric circuits

Source: S. A. HIRSH MFG. COMPANY
8051 Central Park Ave., Dept. IEN, Skokie, Ill.



About 2½ mile range

A pair, or more, of these new electronic Hirshcall portable instruments plug into the regular outlets in an installed electric circuit to provide for two-way conversation employing the circuit as the carrier. Operation is featured by sensitive pick-up so it is not necessary to be close to the instrument. Reproduction is clear.

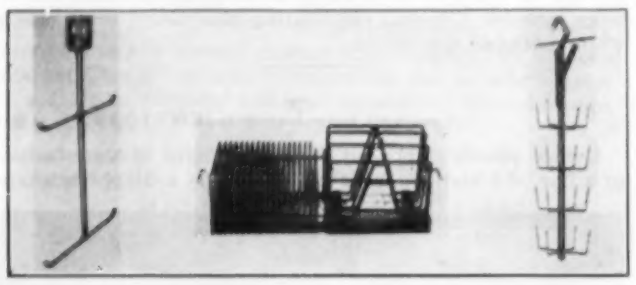
Controls include a talk-listen lever, a volume adjuster, and an "on-off" switch. Each unit weighs 4½ pounds. A pair lists at $84.50. Additional stations add $42.25, each. Overall dimensions are about 8¼ by 5½ by 6 inches. Operating frequency is on 175 kc.

The talk-listen switch can be locked into "constant transmit" position so all sounds in the vicinity are heard in the second instrument of the pair wherever it is located. The unit is listed by Underwriters' Laboratories as safe against shock and fire hazard.

If you write maker identify as IEN - 10552

Handling - Fixtures, hangers, racks to carry work on a production line

Source: COUSE & BOLTON CO.
44 Lafayette St., Dept. IEN, Newark 2, N. J.



Illustrated bulletin, "Take a Tip"

Illustrated are three new designs, typical of special work handling equipment the company is prepared to supply, to carry work on a conveyor line through operations such as painting, plating, anodizing. The company has established an engineering design department that develops the fixture, hanger or rack required for a given product in a specified production operation. These designs are then put through the company's production department for completion ready to go into service.

The equipment is coated with Plastisol insulation to prevent damage leading to corrosion in contact with the work being carried. Removable tips or work holders are interchangeable so a given fixture can be adapted to a variety of jobs.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10553

MORE RUGGED NEW LUG-ALL WINCH HOIST

The trusty, husky LUG-ALL Winch Hoist is now more rugged than ever. Newly designed, job-tested models enable the LUG-ALL to meet new, even more challenging requirements.

1½ TON CAPACITY

The feather weight LUG-ALL *lifts, lowers, pulls, bends, tightens or stretches up to 1½ tons!* LUG-ALL works easily around corners. It is *truly* the "vest pocket" hoist of 1,001 uses, such as:

★ TIGHTENING CONVEYOR BELTS
★ HOISTING MOTORS, SHAFTS, GEARS
★ LIFTING VALVES INTO POSITION
★ PULLING CABLE THRU CONDUIT
★ CONNECTING SLIP-JOINT PIPE

WEIGHS ONLY 9 LBS.

Newly designed aluminum alloy frame really protects ratchet teeth from rough surfaces. Has 133 strand, preformed galvanized aircraft cable.

Oiled-for-life bearings, too. Stainless steel springs. LUG-ALL Safety Handle prevents overload. Your LUG-ALL is factory tested before shipment and guaranteed for one year. Order today, or write for detailed literature.

Also available in rust-resistant, corrosion-resistant MARINE type models with stainless steel aircraft cable at slight additional cost—all parts salt spray tested.

Model #3000 HD
$35.25 FOB

THE LUG-ALL COMPANY
WYNNEWOOD 3, PENNA.

If you write maker identify as IEN - 10554

Printing - Roll feed machine exposes, develops, dries and delivers

Source: CHARLES BRUNING COMPANY
4700 Montrose Ave., Dept. IEN, Chicago 41, Ill.

Diazo direct process

Operating speed is 12 fpm. and printing width is to 11 in. in this new Model 100 Copyflex machine. It is a table mounting unit, particularly designed to make copies of the smaller drawings, sketches, specification lists, instructions, floor plans from originals that are drawn, written, printed or typed on ordinary translucent paper.

Copies are made on Copyflex sensitized paper, cloth or film, fed in with the translucent original. Operation is on 110-volt ac. or dc. in ordinary daylighted surroundings. No exhaust or outside liquid connections are required. List price is $495.

If you write maker identify as IEN - 10555

Hose - For high temperature duty on open hearth furnace charging doors

Source: B. F. GOODRICH COMPANY
450 S. Main St., Dept. IEN, Akron 11, Ohio

Takes a beating

Water is circulated into and out of cooling passages in the doors of an open hearth furnace, to prevent the door from burning up in service, by means of this new wire reinforced asbestos insulated rubber hose. It is made with a heat resistant tube, a reinforcing wire braid, two braids of asbestos and a cover of stainless steel wire braid. Four sizes range from 1 to 2 inches. In a test installation, the hose has lasted for 270 heats. It was transferred from one furnace to another when the first furnace burned out at the end of 138 heats. The company is prepared to supply specified lengths and sizes, complete with fittings, ready for installation.

If you write maker identify as IEN - 10556

New gaging and feeding equipment operates in connection with a Red Ring gear shaving machine for automatic action in an assembly developed by National Broach & Machine Co., 5600 St. Jean Ave., Dept. IEN, Detroit 13, Mich. Gears are fed from the main conveyor line to a vibrating hopper and straight line feeder through an "in" gage that checks them for size before they can enter the shaving machine. Finished shaved gears are unloaded from the machine and fed through an "out" gage that checks them for size and helix angle accuracy. This gage sorts out the gears that can be salvaged from those that are undersized so the former can be returned through the automatic process. The machine will stop if it receives or produces too many reject parts. Signal lights tell the set-up man what is wrong for quick correction.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10557

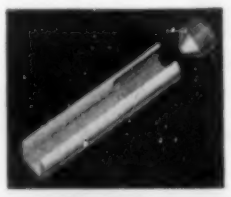
See THESE AIDS TO TOOLING EFFICIENCY!

FLOATING CUT-OFF TOOL FOR LATHES

Solves the problem of cutting off in a lathe. Has a steady-rest that holds the blade on the centerline of work. Prevents tool from chattering or digging into stock. Has specially designed free-cutting blade.

CUT-OFF TOOL FOR SCREW MACHINES

Has free-cutting blade of special design. Supports the blade right up to extreme front edge of holder, eliminating chatter.



SQUARE SLOTTED SLEEVE REDUCES TOOLING COSTS

Saves time and expense of broaching square holes when installing tool bits in boring bars, tool holders and cutter heads. Sizes for square tool bits: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" square.

WRITE FOR LITERATURE

NOVI TOOL & MACHINE CO.
25806 Novi Road Novi, Mich.

If you write maker identify as IEN-10558

Hoist - Portable ratchet design to lift and pull, rates to 1 1/2 ton

Source: LUG-ALL COMPANY
331 E. Lancaster Ave., Dept. IEN, Wynnewood, Pa.

Weighs 9 pounds

New frame design on the Lug-All ratchet operated winch-hoist, previously described IEN-9060-54, covers and protects the ratchet teeth against interference from outside objects in confined locations.

The hoist weighs 9 pounds. It is equipped with a reversible safety handle that will bend when serious overload is applied. Loads can be backed off easily and safely due to the interlocking pawl arrangement. Construction includes stainless steel springs, permanently lubricated bearings, preformed aircraft rope.

If you write maker identify as IEN-10559

Valve - Pressure relief design for air, gas, oil, steam, water

Source: W. R. LADEWIG COMPANY
5608 E. Washington, Dept. IEN, Los Angeles 22, Calif.

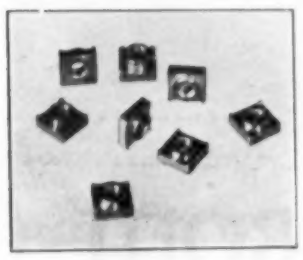
Supplied on order

A plastic band is employed between the two seating members of this new special design of the company's pressure relief valve. The band provides positive seat tightness without affecting the snap action when the valve is applied on gases difficult to hold. Pressure is maximum at 1,000 lb. with temperature at 300 deg. F. Four sizes in the line range between ¼ and ¾ inch. The valve is not designed for use on a boiler. Body construction is in steel bar stock.

If you write maker identify as IEN-10560

Fastening - Plated steel nut for permanent threads in metal sheet

Source: FOX PRODUCTS CO.
4720 N. 18th St., Dept. IEN, Philadelphia 41, Pa.



Speeds assembly

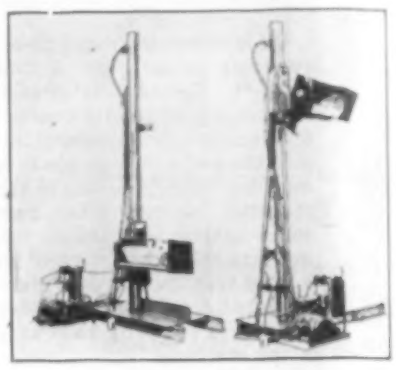
Sharp prongs on the four corners of this new Quintlock nut are embedded in a metal sheet by pressing the nut into position in a press or by striking it with a hammer. A collar, around the threads, bites into the wall of a hole in the sheet to anchor the nut against reverse fall-out. The nut is available in five machine screw sizes from 4-40 to ¼-20. Collar length can be specified.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10562

Elevator - Semi-portable hydraulic to lift and dump work from tote pans

Source: ALLIED MFG. & SALES CO.
3101 W. Grand Ave., Dept. IEN, Chicago 22, Ill.



Push button control

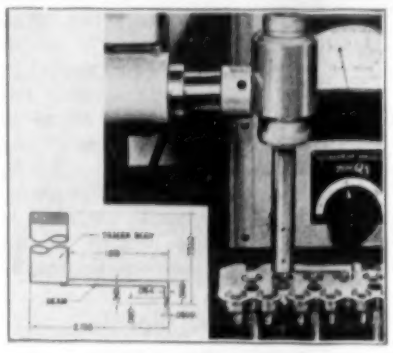
Motor driven power unit supplies hydraulic pressure to a power cylinder mounted vertically in the column of this new machine. The cylinder piston connects by means of sprocket and chain to a tote pan carriage. The carriage moves upward when pressure is applied in the cylinder to engage a tilting stop that can be positioned adjustably on the column. This stop causes the carriage to roll over and dump the contents of the tote pan held on it. Reversing the action permits the emptied pan to come back to upright position with the carriage and the two return to floor elevation.

The motor rates ¾ hp. The carriage will handle a load to 500 pounds. Overall dimensions are 30 by 48 by 144 inches. The tilting stop can be set to dump a load at any position to 11 ft. above the floor line.

If you write maker identify as IEN-10563

Gage - Electronic instrument reads surface roughness in micro inches

Source: MICROMETRICAL MFG. COMPANY
345 S. Main St., Dept. IEN, Ann Arbor, Mich.



Bulletin LT93

Type GC designates a new tracer head for application in the Linear Pilotor, previously described IEN-7201-54, to measure surface roughness across the bottom of flat bottomed grooves and slots to ¼ in. in depth. Measurements can be made also behind shoulders to ¼ in. in height and in inside diameters ranging from ⅜ in. to flap. The tracer point is at the bottom of a vertical extension at the end of a long beam as shown in the illustration. Readings are made on the dial of the Profilometer Amplimeter.

If you write maker identify as IEN-10564

Mak-A-Key is a new zinc coated machine-key stock. It is available in six square sections, measuring $\frac{3}{16}$ to ½ in., and in 12-in. length. The stock is over-size in both dimensions to assure a snug fit in a keyway. It is clean and greaseless. It is particularly suited for repair and replacement application. It is available from DeVan-Johnson Company, 500 Rathborn Ave., Dept. IEN, Aurora, Ill.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10566

for clear, accurate

NAME PLATE MARKING

WAGNER DISTRIBUTION TRANSFORMER

"Its accuracy and the uniform clearness of the marking are the features that make it superior to the method previously used," say officials of Wagner Electric Corporation, St. Louis, about the Automark.

For complete details on the Automark, the world's only metal marking electric typewriter, **WRITE TODAY for Bulletin 8-16.**

This unique detail marking machine employs a standard typewriter keyboard. Light touch on key produces mark by instantaneous electrical response. Production speeded, operator fatigue lessened. Heavy-duty table. Wide range of plate size and thickness. Type sizes from 1/16" to ¾".

DEFIANCE MACHINE & TOOL COMPANY
1926 South Vandeventer Ave. • St. Louis 10, Mo.

If you write maker identify as IEN-10567

MILESTONES IN MEASURES

Some 4000 years ago, when the Pyramids were being built on the Egyptian sands, there was a definite system of measurement. Not as accurate as our present day methods, but nevertheless, they served their purpose. ***The standard was the cubit the length of the human forearm.***

During the time of the Norman Conquest, ***a yard was fixed by law to be the distance between the King's nose and the end of his outstretched hand.*** This, however, was not very stable, as the standard changed with every reigning monarch.

Fixed gages for measuring holes were solid cylindrical pieces. These solid pieces were inefficient by modern gaging standards because as soon as the GO end was worn—the gage had to be thrown away.

Later, a taperlock gage was developed and this was a step in the right direction because GO ends could be replaced when worn.

Size Control Company improved the taperlock design early in World War II when they originated the **reversible** thread plug gage with the following advantages: Member can be reversed when end is worn . . . worn ends can be cut off to expose several additional gaging surfaces . . . this increases gage life many times . . . members can be adjusted for length of hole.

TODAY...
Use Size Control Co.'s reversible gages for greatest economy and reliability!

THE FINEST GAGES MADE . . .

SIZE CONTROL COMPANY
2500 West Washington Boulevard
Chicago 12, Ill., MOnroe 6-6710

Send for Size Control Catalog 53 to learn of many more economies and quality-building features.

A Division of the AMERICAN GAGE & MACHINE COMPANY

If you write maker identify as IEN-10561

FORT WORTH
SCREW CONVEYORS AND ACCESSORIES

FORT WORTH HELICOID SCREW has many advanced features, which definitely rate it the oustanding conveyor on the market today. All sizes up to 16" are cold rolled by the Fort Worth process which hardens the wearing surface and assures longer life.

Component parts necessary to fit practically any installation requirement are manufactured to highest standards and can usually be furnished from stock.

WRITE FOR CATALOG SECTION 200

FORTH WORTH • CHICAGO • ST. LOUIS • KANSAS CITY • WAREHOUSES: MEMPHIS • ATLANTA • JERSEY CITY • LOS ANGELES • HOUSTON • SAN FRANCISCO

FORT WORTH STEEL & MACHINERY CO.
DEPT. 29, 3600 McCART ST., FORT WORTH, TEX. 4

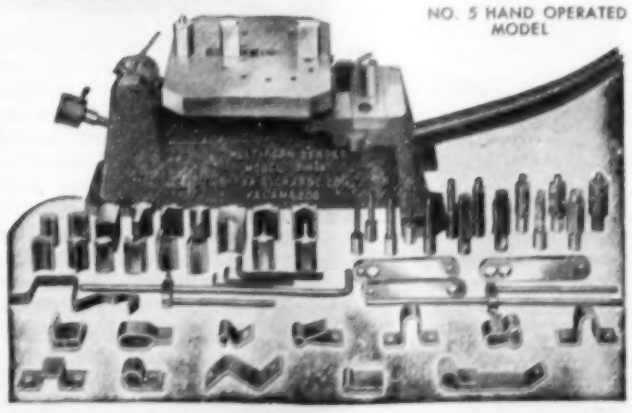
If you write maker identify as IEN-10565

THE FAMOUS MULTIFORM BENDER CUTTER

Produces Without Special Tooling • Saves Die Costs Saves on Expensive Presses

The illustration to the left shows just a few pieces produced on our famous Multiform Bender-Cutter. This efficient machine is useful in all lines of trade. Spring Plants, Radio, and Electrical Equipment Manufacturers, complete with tooling for bending material us to ⅛" to 1½".

NO. 5 HAND OPERATED MODEL



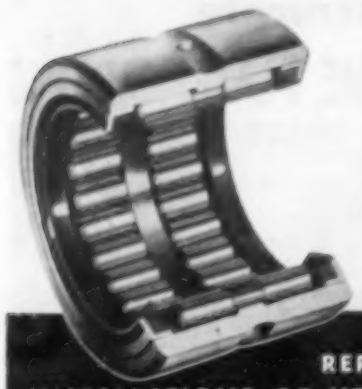
FIVE-IN-ONE-TOOL—ALSO LARGER MODELS

Air Operated Models in this and Larger Sizes Available

IT BENDS FLAT AND ROUND STOCK INTO ANY SHAPES, CUTS AND PUNCHES FLAT STOCK

J. A. RICHARDS CO. 907 NORTH PITCHER ST. KALAMAZOO 60F, MICH.

If you write maker identify as IEN-10569



NEW McGILL® sealed GUIDEROL® full type roller bearing

REPLACES COSTLY INSTALLATIONS OF NEEDLE BEARINGS AND SEPARATE SEALS

Dependable GUIDEROL Bearings are now available in a new series that incorporates single or double seals without any increases in overall bearing width. It's the first sealed unit to replace ordinary needle bearings having auxiliary sealing arrangements. Housings can be less complicated and smaller with less machining.

Complete with commercial lip type seals, the new unit costs very little more than standard bearings for shaft sizes of ½" to 2 inches. Five seal combinations increase application possibilities for this first sealed full-type roller bearing.

Detailed information is contained in a new bulletin, SGR-54. Write for it today.

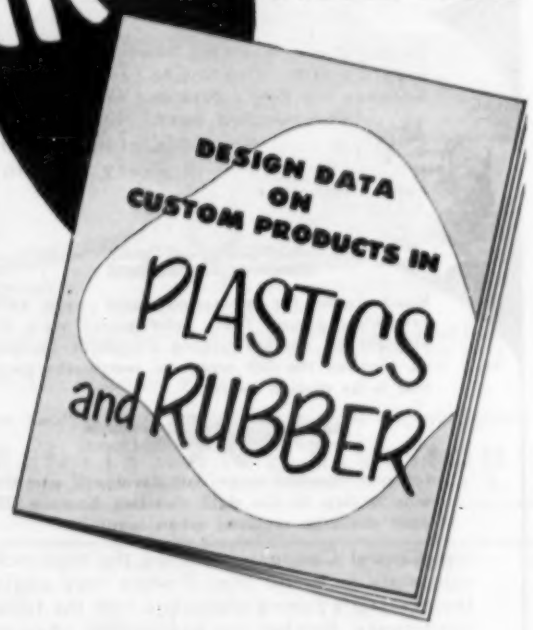
McGILL® precision bearings

McGILL MANUFACTURING CO., INC. 100 N. LAFAYETTE ST. VALPARAISO, INDIANA

If you write maker identify as IEN-10570

FREE!

PRACTICAL DATA ON EXTRUDED RUBBER AND PLASTICS ... MOLDED RUBBER PARTS



Here is a free booklet helpful to those interested in the design and use of extruded rubber and plastics and molded rubber. Our complete custom design and production service is available on all these products *now!*

General can save you time, money and production headaches with its own tool and die-making facilities, self-designed molding and extruding machinery, and full scale quality control at every phase of manufacture.

For further information write for your free booklet today.

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Name _____
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City _____ State _____

IEN 8-54

If you write maker identify as IEN-10572

Lubricating - Miniature assembly of reservoir, pump, metering elements

Source: BIJUR LUBRICATING CORP.
151 W. Passaic St., Dept. IEN, Rochelle Park, N. J.

For the little bearings

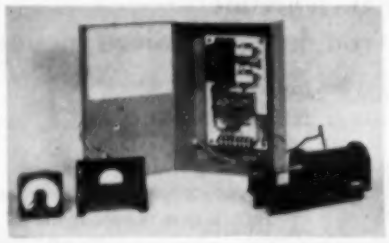
Oil is delivered from a 20-cc. reservoir in the body of this new "L Special" lubricator through a maximum of four individual metering elements, inside the body, to passages in a machine housing leading to the machine bearings. When passages cannot be made in the housing, the oil is delivered to a tube terminating in a maximum of four external meter elements leading through branch lines to the bearings on the machine.

Pulling on a plunger delivers the oil through the meter elements. Each plunger movement can be set to discharge a total of 0.3, 0.45 or 0.6 cc. The oil supply in the reservoir shows through a ⅝-in. window in the 1½ by 1⅝ by 2¼-in. housing. The housing is made of die cast aluminum with polished finish.

If you write maker identify as IEN-10573

Signaling - Linear transducer to actuate remote position indicator

Source: CONTROL PRODUCTS CO.
Noblestown Road, Dept. IEN, Oakdale, Pa.



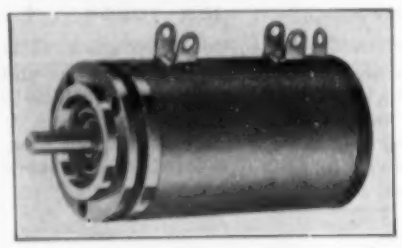
For specified use

A linear transducer, an electric control panel and an indicator make up the assembly of this new Electric Position Transmitter. The transducer is a cylindrical assembly with a movable rod through its center to connect to a sliding machine element. The unit provides for rod travel from ⅝ to 3 in. in the stationary transducer housing. This movement, inward or outward in step with the machine element, is transmitted electrically to the indicator located at an operator's position. He can observe the machine setting at any moment.

If you write maker identify as IEN-10574

Control - Potentiometer designed for bushing or servo mounting

Source: HELIPOT CORPORATION
916 Meridian Ave., Dept. IEN, South Pasadena, Calif.



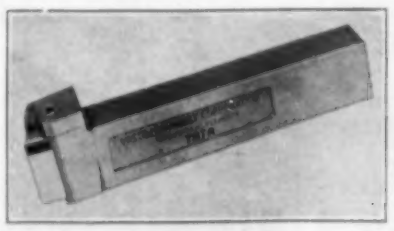
Small and precise

Linear and non-linear designs are included in the company's new Series AJ precision potentiometer, a 10-turn miniaturized unit measuring 1½ in. in length by ⅞ in. in diameter. The unit contains a mandrel wound resistant element 18 in. in effective length to provide resolution as fine as 0.01 per cent. Standard resistance range is 25 to 100,000 ohms in the linear design. Standard linearity tolerance is within 0.5 per cent and can be improved to 0.1 per cent on special order. Standard conformity tolerance, for most functions, is within 1 per cent for the non-linear design with closer conformity on order.

If you write maker identify as IEN-10575

Lathe Tools - Carbide bit holder employs throw-away carbide blanks

Source: VASCOLOY-RAMET CORPORATION
800 S. Market St., Dept. IEN, Waukegan, Ill.



Catalog VR-436

The carbide blanks employed in this new holder are available to fit triangular, square and round holders and are to be used on all of their cutting edges without grinding. Then they are thrown away and replaced with new blanks. The combination of holder and blanks represents further development of the lathe tool, previously described IEN-1467-54.

The tool is available with neutral or negative rake. It employs the previously developed built-in carbide chip breaker which, in combination with the throw away blank, eliminates need for grinding. Seven shank sizes range from ⅝ by 1 by 6 in. to 1½ by 1½ by 8 inches.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10576

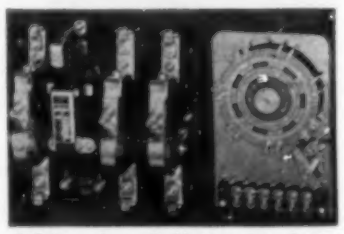
LUMENITE MAGNETIC SWITCHES

For Heavy Electrical Loads Operated by Lumenite Time Switches, Liquid Level Controls, Interal Timers, Electronic Timers, Electronic Switches, or other controls.

To meet the demand for better, more dependable, longer life and trouble-free operation, Lumenite offers a complete line of *Magnetic Switches—Transfer Switches* and *Reversing Switches.* Heavy electrical loads such as pumps, flashing signs, flood light or area lighting systems, emergency power loads, laundry or industrial machines are safely handled by these improved switches. All types—all capacities.

Most advanced construction assures long life of heavy duty service with little or no attention.

SPECIAL — If you have an unusual operation or power control, write us your requirements.



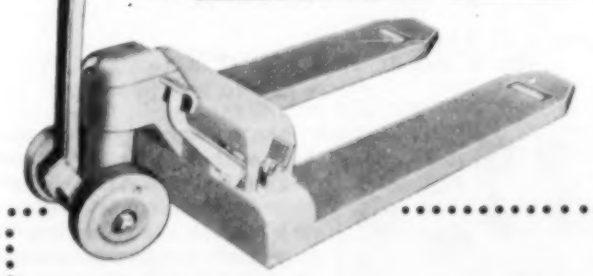
Write for Bulletin M S-451

Lumenite Electronic Co.
407 S. Dearborn St., Chicago 5, Ill.

If you write maker identify as IEN-10577

Why pay more?

mass production techniques make this high quality hydraulic pallet truck the lowest cost truck on the market!



TURNABOUT®
ADJUST • A • FORK
HYDRAULIC LIFT TRUCK
with interchangeable forks

built for long, satisfactory service

Mass produced for long service at reasonable cost, this hydraulic fork lift truck is second to none in construction and performance. Featuring chrome plated rams and pistons, the 2,500 lb.-capacity Turnabout combines all desirable features of modern pallet trucks, yet saves many dollars in initial and maintenance costs. Available with interchangeable forks in five standard lengths—30", 36", 40", 42" and 48". Also available in 54" and 60" lengths, if desired.

$350.00 for complete truck!

mail coupon today!

RACK

RACK HYDRAULIC EQUIPMENT CORPORATION
Connellsville, Pa. IEN 954

Send complete data on the "Turnabout" Pallet Truck

Name _____ Title _____
Company _____
Street _____
City _____ Zone ____ State _____

Agents in principal cities of U.S., Canada and Europe

If you write maker identify as IEN-10579

Sheehan's FLEX-BEND CONVEYOR

Place your equipment where you like, Flex-Bend gets there horizontally

Flex-Bend bends horizontally in either direction on a 54 inch radius. It is made up of three types of cars: Drive Car, Take Up Car, Center Car. By adding Center Cars nearly any length can be obtained. Standard belt widths 12", 18", 24". Adjustable in height and portable. Sheehan's high carbon woven wire belt is driven with the well known Sheehan positive drive spiked pulley. Flex-Bend rolls completely on roller and ball bearings. Cuts down friction, giving long life. Rigidly built, easy to move. Practically maintenance free.

Flex-Bend is sold by the car. Write for literature, and exceptoinally low prices.

Conveyors

R. T. SHEEHAN CO.

8070 N. Territorial Road Plymouth, Mich.

If you write maker identify as IEN-10580

Load Support... WHERE IT IS NEEDED MOST

Platform truck design offers maximum load support and eliminates hinges, pins and bushings. Extra LOAD SUPPORT is only one of the many features found in this model... and there is no additional cost for extra LOAD SUPPORT. Trucks are available in capacities up to 10,000 lbs.

Write for Bulletin No. 53 . . . and remember . . . THERE'S A MOTO-TRUC FOR EVERY PURPOSE.

Representatives in Principal Cities

The MOTO-TRUC Co.

1987 E. 59th STREET • CLEVELAND 3, OHIO

PALLET . . . PLATFORM . . . HI-LIFT TRUCKS

LARGEST EXCLUSIVE MANUFACTURERS OF "WALKIES"

If you write maker identify as IEN-10582

Broaching - Hand hydraulic machine rates 2 ton, had 15 in. broach travel

Source: PIONEER BROACH CO.
6434 E. Telegraph, Dept. IEN, Los Angeles 22, Calif.

Catalog 100

Quick set up for a single work piece, or a limited number of work pieces, characterizes this new Model BH-215 hand hydraulic machine. It can be installed to do odd broaching jobs otherwise requiring stopping and tooling more expensive production line machines.

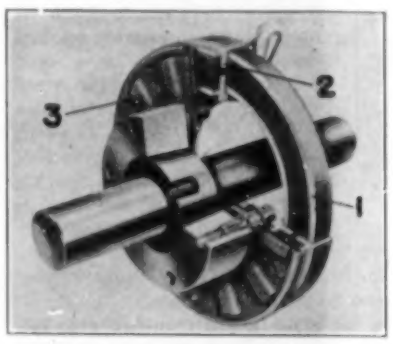
Two ton of hydraulic pulling power are developed by operating the hand lever. Rapid return of the broach to starting position accompanies release of the hydraulic pressure by turning a knob located beneath the handle. The machine has a 15-in. stroke. One-half inch of this movement results on each stroke of the hand lever.

The table measures 16½ by 16½ inches. The housing base is 18 by 18 in. and height is 42 inches. Weight is about 250 pounds. Accessories and broaches are carried in stock for immediate delivery in a variety of sizes and shapes. The machine alone lists at $395.

If you write maker identify as IEN-10583

Drive - Electric clutches and brakes rating to 700 foot pounds

Source: WARNER ELECTRIC BRAKE & CLUTCH CO.
Box 618, Dept. IEN, Beloit, Wis.



Details upon request

A field unit 1, a replaceable friction face 2, and an armature 3, make up the basic assembly of a new line of electric brakes and clutches which the company has added to the smaller units, previously described IEN-2399-54. Torque range in the new line is from 8 to 8,400 inch pounds. Both units are suited for use on industrial and agricultural equipment. They can be used to synchronize machine motions, to control indexing and positioning, to interlock for safety. Control can be centered at a push button or set up for automatic operation by electric switches, relays, photoelectric cells.

If you write maker identify as IEN-10584

Grinding - Portable pneumatic tool drives mounted points, to 100,000 rpm.

Source: AIR EQUIPMENT CORP.
1355 Michigan, Dept. IEN, Grand Rapids 5, Mich.

$42.50 complete

A finger tip speed control, mounted as a flush integral part of the back cap, and a collet guard feature the new construction of the company's Pencil Grinder, previously described IEN-4583-54. The guard prevents application of over-sized mounted points and protects the operator against possible skin burn from contact with the rotating collet. The improved design weighs about 6 oz. and is about 5 in. in length.

Compressed air from a shop source enters through a length of flexible hose and a filter lubricator, both of which are supplied as standard equipment. Exhaust air is directed at the tip of the point or cutting tool to keep the work clear of chips. This is particularly desirable when the work is plastic, rubber, ceramic, glass or soft metal such as copper. The chuck takes mounted points and rotary cutters with ⅛-in. shanks. Operation is on 50 lb., or more, of air pressure.

If you write maker identify as IEN-10585

Stat-Varistor is a new electronic device measuring about 1 in. in length by ½ in. in diameter. It protects the contacts in a mercury column thermostat against voltage surges that injure the contacts. The new unit is a variable resistor. It eliminates destructive arcing by changing resistance as the voltage across it is changed. A series of selenium plates hermetically sealed in glass provides high resistance at low voltage and drops off quickly, as the voltage rises, to absorb electrical energy that might otherwise burn the contact points. Princo thermostats, manufactured by Precision Thermometer & Instrument Co., 1434 Brandywine St., Dept. IEN, Philadelphia 30, Pa., are now available with this new unit.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10586

60-DAY FREE TRIAL

of America's most popular industrial stool

A tired worker costs MUCH more than a good chair

- 4-way adjustable backrest
- Scroll shaped posture seat
- Tamper-proof tubular all-welded construction
- 3 adjustable height ranges.

Now test Royal's famous No. 515 stool in your own plant without cost or obligation. See why the country's top firms choose it for superior versatility and durability. Write for free trial stool today!

metal furniture since '97 Royal

ROYAL METAL MANUFACTURING CO.

175 North Michigan Avenue, Dept. 209, Chicago 1

If you write maker identify as IEN-10587

if . . . you measure liquids you should use BOWSER

XACTO METERS

..."the world's most widely used meter!"

Over 856 different types of liquids are handled every day by Bowser XACTO meters in all kinds of industry.

For more than 50 years Bowser has led the way in providing accurate and dependable meters for industry.

Write TODAY for specific information about the job XACTO meters can do for you.

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1338 CREIGHTON AVE., FORT WAYNE 2, IND.

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If you write maker identify as IEN-10588

one standard FLEXLOC SELF-LOCKING NUT

covers temperature range to 550°F

Because they are all metal and require no auxiliary locking device, FLEXLOCS lock and stay tight even at higher temperatures. See your local industrial distributor for literature and samples or write STANDARD PRESSED STEEL Co., Jenkintown 14, Pa.

FLEXLOC LOCKNUT DIVISION **SPS**
JENKINTOWN PENNSYLVANIA

If you write maker identify as IEN-10589

Data Book Available!

WASHERS and METAL STAMPINGS

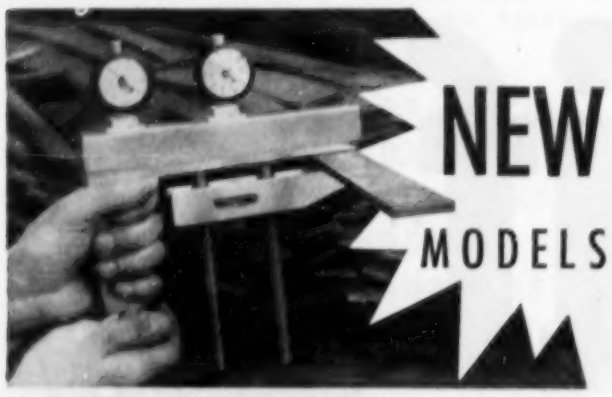
Write today for your free copy of this booklet that contains useful information on:
TENSION WASHERS • WIRE TERMINALS • GENERAL STAMPINGS • FRICTION WASHERS • BLANKING DIES • PROGRESSIVE AND COMPOUND DIES • DISHED BLANKS • FINISHING WASHERS • STANDARD GAUGES

Quadriga has a press capacity up to 150 tons, depth of draw to 4 in.—also, new production line facilities for job work and parts assembly service. It may pay you well, in terms of lower assembly costs, to ask about this service. When you request our booklet—ask about this, too.

THE QUADRIGA MANUFACTURING CO.

215A W. GRAND AVE., CHICAGO 10, ILL.

If you write maker identify as IEN-10590



PORTABLE HARDNESS TESTERS

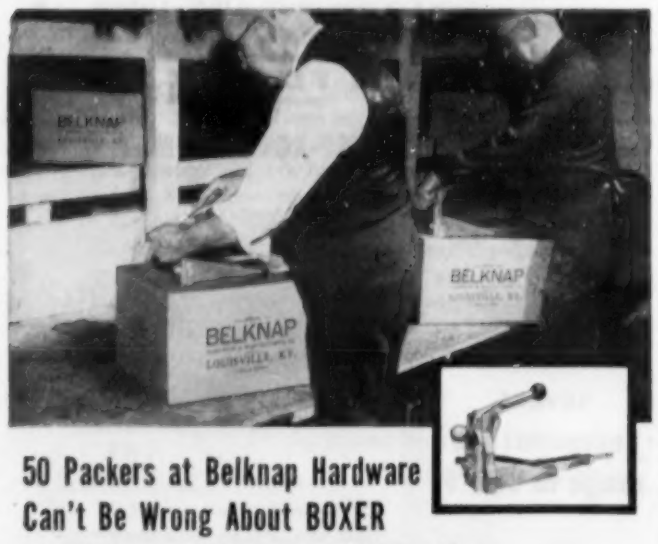
RIEHLE portables test *inside and outside* surfaces of parts inaccessible or difficult to test on bench machines. Riehle testers weigh but a few pounds and come in handy carrying cases. They save the expense and time of cutting samples from heavy parts. Testers simply clamp onto specimens.

Riehle Portable Hardness Testers eliminate "conversion" errors by using standard Rockwell indentor and loadings. Scales: A, B, C, D, F and G. Capacities: up to 12" diameter or thickness.

RIEHLE TESTING MACHINES
Division of American Machine and Metals, Inc.
East Moline, Illinois

FREE BULLETIN WRITE DEPT. IEN-954

If you write maker identify as IEN-10591



50 Packers at Belknap Hardware Can't Be Wrong About BOXER

Men who do the packing at Belknap Hardware and Manufacturing Company in Louisville, Kentucky can tell you about the on-the-job advantages of BOXER!

Like many companies faced with small carton closing problems, Belknap Hardware reports better packaging at lower cost. Says Mr. Charles A. Gage, Vice President:

"*We have fifty packers using your BOXERS. They are practically unanimous in preferring the BOXER way. They say it's faster, cleaner, neater than our* former method."

Get the facts on BOXER savings . . . BOXER speed . . . BOXER efficiency. Send for Bulletin B/101.

the Royal Family of Packaging **International Staplers**

INTERNATIONAL STAPLE & MACHINE COMPANY, 805 E. Herrin St., Herrin, Ill.

If you write maker identify as IEN-10592

Bending - Hand operated tool bends metal over front jaw of a vise

Source: LUND MFG. COMPANY
Dept. IEN, Biddeford, Maine

About $13

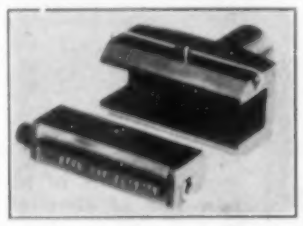
Bendit Jr. is a new patented hand operated tool to grip between the jaws of a machinist's vise with a piece of flat stock that is to be bent. When the tool lever is pulled forward, a roller "wipes" the work over the front vise jaw to bend it to a desired angle.

The tool has capacity for metal to 6 in. in width. It can be employed to bend a radius by placing a piece of bar stock of desired size in front of the work. It will make multiple bends in forming channels, boxes. Capacity is 18-gage mild steel to 6 in. in width, 16-gage to 3 in., 3/16-in. strip to 1 in. and 3/8-in. bar stock.

If you write maker identify as IEN-10593

Marking - Steel type holder for use in a press, changes quickly

Source: HEIDRICH-NOURSE COMPANY
631 E. 3rd St., Dept. IEN, Los Angeles 13, Calif.



No set screws

Type pieces are held by engagement between a notch in their sides and a spring-backed washer-locked pin in a tool steel insert in this new steel type holder. The insert applies as a unit, with the type in place, in the chrome-molybdenum steel body. It is backed up by the bottom of the slot in this body and is prevented from falling out by a spring backed locking pin. The pin can be retracted to remove the insert quickly so another previously assembled set-up can be put in its place.

Three single line inserts, for type length measuring 1, 1½ and 2½ in., and three double line units in the same length, each for ¼-in. type body range in price from $15 to $25.50. Two holders for the three single line inserts and two double line holders list at $28.50 to $40. The holder is fitted with an integral shank measuring ¾ or 1 in. in diameter. Other sizes from ½ to 2 in. are available to order.

If you write maker identify as IEN-10594

Lighting - Flood light, weather proof, points in any direction

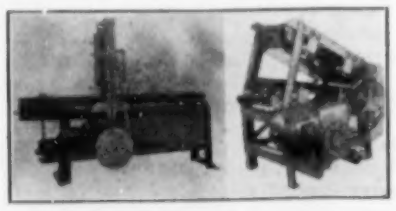
Source: PYLE-NATIONAL COMPANY
1334 N. Kostner Ave., Dept. IEN, Chicago 51, Ill.

Twenty inch face

The metal housing in this new Type 20175 floodlight is trunnion mounted for rotation through a complete circle. The trunnion also is pivot mounted on the base to turn through a complete circle. Enclosed construction employs a door and glass joints with a tight soft packing seal to keep moisture and dirt from the reflector, lamp, and the inside of the lens. The light takes a 1,000-watt G-40, 1,500-watt G-48, or a 1,500-watt PS-52 lamp. It also takes the 750 and 1,000-watt PS-52 lamp and the 700 and 1,000-watt mercury lamp.

If you write maker identify as IEN-10595

We refer you to F. H. Langsenkamp Co., 237 E. South St., Dept. IEN, Indianapolis 4, Ind., if you have a problem of opening large quantities of cans and then getting rid of the empty cans. A new can opener, to the left in the illustration receives closed cans under a hollow stainless steel cutting bit. This 4-in. bit pierces both the top and the bottom of the can and dishes the bottom for drainage. The product drains into a stainless steel pan. Then a spray nozzle rinses the empty can. The machine will handle 20 No. 10 cans per minute. The problem of can disposal is solved by the new crushing machine, to the right in the illustration. It flattens cans to 5/8 in. and discharges them into a crate or cart. This machine will handle any can to gallon sizes. The cans feed between two converging belts carrying links to prevent slipping.



All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10596

DEGREASING MIRACLE!

NAVEE'42 Works Instantly!

Photo shows how NAVEE'42, rinsed with water, leaves a perfectly clean surface—it instantly starts to dissolve preservative coatings, grease, oil, carbon stains, asphalt, tar, resins, printing inks, etc. Use it concentrated or even diluted with water. NAVEE'42 gives off no oppressive or dangerous fumes. May be used hot or cold. Try NAVEE'42 in your plant!

How a Degreaser that "COULDN'T BE MADE" Cleans-up for YOU!"

For many years, chemists tried in vain to eliminate cresylic acid (because of hazards) from heavy-duty degreasers and still maintain efficient cleaning action. Twelve years ago, Penetone's chemists found the secret and created NAVEE'42. To date, there is no equal to this product, even though others imitate the name. Customers call NAVEE'42 a degreasing miracle!

Eliminates Hazardous Cresylic Acid Products

NAVEE'42 contains no cresylic acid. It is not only safer, but actually performs more efficiently than many types of products containing cresylic acid! Medical authorities agree contact with cresylic acid causes severe skin lesions, chemical burns and even impairment of vision. Death can occur from over-exposure! Cresylic acid has a maximum allowable concentration of 5 parts per million parts air—this limit is quickly exceeded in hot tank degreasing. NAVEE'42 eliminated all these hazards.

SEND FOR FULL INFORMATION!

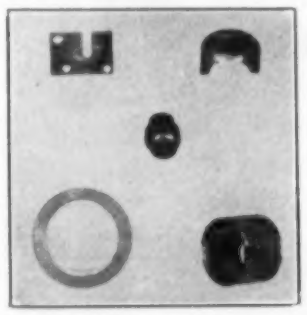
the PENETONE co.

Box IEN-954 Tenafly, New Jersey

If you write maker identify as IEN-10597

SELF-LUBRICATING BEARINGS AND MECHANICAL PARTS

SINTRLOY — DUCTILOY — SEALALOY



SINTRLOY – Powdered Bronze Bearings are used by the millions in sweepers, refrigerators, washing machines, portable electric and pneumatic tools, medium and light industrial equipment.

DUCTILOY – An extremely tough bearing material that is actually malleable and has a high resistance to shattering. Powdered Bronze Bearings and Mechanical Parts to be used in heavy duty applications where greater strength and shock resistance are required.

SEALALOY—Powdered Bronze Material used for mating rings in rotating mechanical seals to give excellent wearing qualities and shock resistance. Manufactured to your exact requirements.

National's widely experienced engineering and design departments are always at your service to help you with parts that must be specially designed to their particular application.

NATIONAL MOLDED PRODUCTS, INC.

1945 Mill Street St. Marys, Pa.

If you write maker identify as IEN-10598

LARGE HOLE TAPPING MADE EASY!

With the New **HEAVY DUTY**

"TAP KING"

Whether you're tapping in 1½" steel plate, threading ¾" pipe, tapping "blind" in steel castings or open tapping in high carbon forgings — you'll be amazed at the "handling ease" of this heavy duty tapping attachment. The secret is in the heart of the unit which includes: an improved sensitive friction clutch; a new helical gearing mechanism; ball and needle bearings and the exclusive 17 tooth spline drive from clutch to tap holder which gives a smooth, powerful drive with less strain, wear and vibration.

Find out more about this "production" marvel, see how it can increase your production, save on tap breakage and parts spoilage.

Write for FREE brochure

giving full details and specifications on the TAP KING and the complete line of Procunier Tapping Attachments.

NEW! "TRU-GRIP" TAP HOLDER is lighter, smaller in diameter. It affords easier tapping close to walls.

PROCUNIER Safety Chuck Company

Dept. 9, 16-18 S. Clinton Street, Chicago 6, Ill.

If you write maker identify as IEN-10599

When your requirements demand an industrial fan possessing these combined features:

High Volumetric Capacity
Maximum Efficiency
Quiet, Stable Operation through a Wide Performance Range
Absolute Non-overloading Characteristics
Rugged Construction

Your selection of the Robinson type "J" Fan is the solution to your problem.

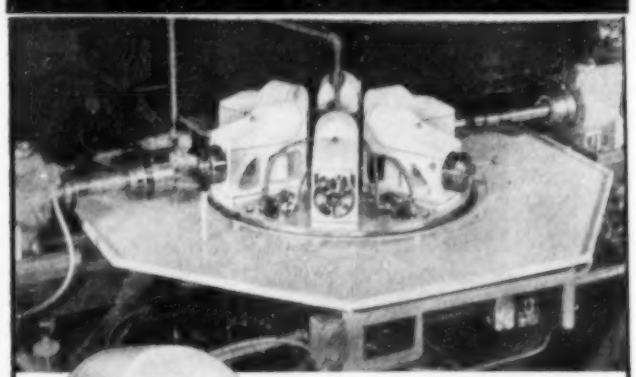
It is built in a complete range of sizes, arrangements and classes.

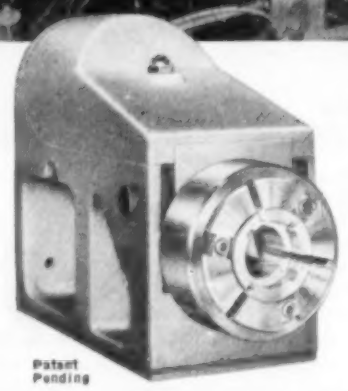
Ask for Bulletin No. 2500 — or better still, send us a description of your problem.

ROBINSON VENTILATING COMPANY
Manufacturers of Fans and Ventilating Machinery for over fifty years
1945 HARMONY STREET
ZELIENOPLE PENNSYLVANIA

If you write maker identify as IEN-10600

Production Tested ON INDEXING TABLES!





Patent Pending

- TREMENDOUS HOLDING POWER ADJUSTABLE FROM ROUGH CASTINGS TO FRAGILE PARTS
- REGISTERS IN EXACT POSITION CASTINGS OR PARTS TO 1/16" VARIATION
- COMPACT DESIGN... MOUNTS HORIZONTALLY OR VERTICALLY

Introducing the NEW

AIRKOLET Chuck

PRODUCTION TESTED!

The new AIRKOLET Chuck has been tested in production on indexing tables for over a year, on millions of parts of widely differing sizes and shapes . . . registering each part in exact position each time! Due to its design, AIRKOLET proved to be ideally suited for castings where tolerances were required for variations up to 1/16", thus eliminating much unnecessary grinding.

COMPACT . . . RUGGED!

AIRKOLET Chuck mounts horizontally or vertically on drill presses, milling machines, indexing tables where high speed production is desired. Holds parts for turning, drilling, reaming, chamfering and threading.

Production reported of one machine using AIRKOLET in 1 hour equalled that of 8 hours by former method.

AIRKOLET Model B (above), Size 1⅞", Capacity:

SOLID COLLET:		MASTER COLLET with Pads:	
Hexagon	⅜" to 1⅞"	Hexagon	⅜" to 1½"
Square	⅜" to 1½"	Square	⅜" to 1-3/16"
Round	⅜" to 1⅞"	Round	⅝" to 1⅞"

Supplied with one set soft pads or one solid collet for round or hexagonal parts. Pads, collets for special shapes are available. Air-control valves for hand or foot operation at extra cost.

WRITE TODAY for our Bulletin T101 for complete information and specifications.

PITT INDUSTRIES
CARNEGIE, PENNSYLVANIA
Dept. IEN-1

If you write maker identify as IEN-10602

Truck - Electric platform lift with "die puller" platform at an angle

Source: BARRETT-CRAVENS COMPANY
628 Dundee Road, Dept. IEN, Northbrook, Ill.

No physical effort

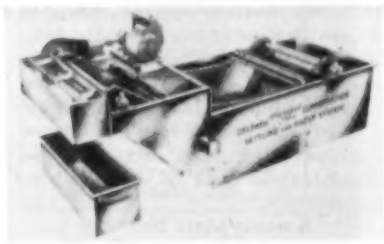
Illustrated is new assembly of the company's PO-40 Hi-Lift electric truck and a die puller platform positioned at a 30-deg. angle. The arrangement permits the truck to approach a press or tool rack, where space is limited, to pull tools onto the platform for movement to storage or to push a tool into operating position on a press bed. The truck can be used equally well for heavy production loads in ratings to 6,000 pounds.

Control centers at a push button station, attached by a length of cord to the truck, to raise and lower the platform and to push or pull a load. Travel control, by motor drive, is located at the steering handle on the truck.

If you write maker identify as IEN-10603

Filtering - Liquid clarifier available to order for specified use

Source: INDUSTRIAL FILTRATION CO.
Dept. IEN-195, Lebanon, Ind.



For corrosive fluids

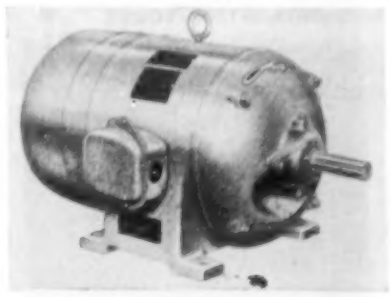
The company announces availability of its liquid clarifier, previously described IEN-7934-54, in stainless steel to handle liquids that attack other metals. Typical applications are in food processing plants for filtration of edible oils and juices and in paper making. Basic construction has not been altered from that in the previous design in which a brush equipped chain flight conveyor travels slowly down the face of a screen at one end and along the tank bottom to discharge over the opposite end of the tank near the inlet.

Solids, that accumulate on the screen and on the tank bottom, are gathered and discharged. Liquid, that passes through the screen, leaves the assembly at a pipe connection beyond the screen for return to a circulating line or to a process outlet. The screen is made of parallel V-section wires or bars with slot openings measuring 0.004 in. or more.

If you write maker identify as IEN-10604

Motor - Squirrel cage induction with built in brake to stop quickly

Source: LOUIS ALLIS COMPANY
427 E. Steward St., Dept. IEN, Milwaukee 7, Wis.



Bulletin 1550

Illustrated is new combination of one of the company's open drip proof motors with a built-in Stearns Magnetic brake. Current to the motor also connects to a solenoid that holds the brake in released position as long as the motor circuit is closed. Opening the circuit releases the solenoid for positive spring action on pressure plates in the brake assembly to engage a molded friction lining that quickly stops rotation. Overall length is minimized by employing the motor end bracket as an integral part of the brake.

The new line includes NEMA motor frame sizes from 203 to 326. The brake supplies maximum continuous duty torque of 3 to 50 ft. lb. over the Brakemotor line.

If you write maker identify as IEN-10605

Free flowing materials or liquids can be delivered one after another into a receiving tank or hopper, supported by an SR-4 load cell, in new batch weighing equipment developed by Gilmore Industries, 5713 Euclid Ave., Dept. IEN, Cleveland 3, Ohio. The strain gage operates through a progressive control that actuates solenoid operated gates or valves in the various supply lines. Each material is delivered in predetermined quantity, as set on the control, until all of the materials have been delivered to make up the batch. The equipment then dumps the delivered materials, making certain that all have been dumped before the next batch is started.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . Descriptions . . Ratings . See Page 50

If you write maker identify as IEN-10606

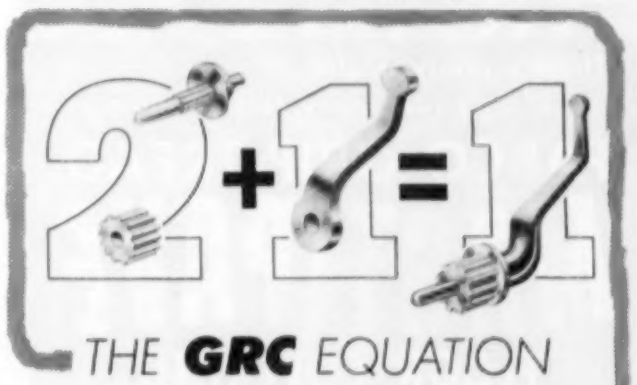
Roll a NEW Floor OVER the old with

Redi-Roll
Factory Prepared, Heavy Duty Plastic Resurfacer
NO WAITING!
Let Heaviest Traffic Roll Over It Immediately!

Abolish downtime due to floor failures. Just roll *Redi-Roll* over the old floor to a compacted ¼" thickness and USE AT ONCE. It's spark-proof! It's tough! It's industry's best floor buy. Write for details now . . . today!

ROCK-TRED Corporation
Manufacturers of a Complete Line of Building Maintenance Materials
7440-7450 North St. Louis Avenue • Skokie, Illinois
In Canada: Rock-Tred Corporation (Canada) Limited, Toronto 5

If you write maker identify as IEN-10607



THE **GRC** EQUATION FOR MAKING YOUR SMALL ASSEMBLIES IN **ONE PIECE**

Add parts and operations and you add cost . . . GRC reduces operations, makes small parts in ONE low-cost die casting. Gries methods speed production, prevent waste, offer design improvement. If you use small parts, chances are that Gries engineers can show you how to simplify—and save.

Fast delivery of 100,000 completely finished small parts —to many millions. Write today for bulletin and samples. Send specifications for prompt estimates.

SMALLNESS UNLIMITED { Max. Wt. ½ oz. Max. Lgth. 1¾"

GRIES REPRODUCER CORP.
World's Foremost Producer of Small Die Castings
139 Beechwood Ave., New Rochelle, N. Y. Phone: NEw Rochelle 3-8600

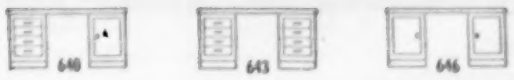
If you write maker identify as IEN-10608

"640" series

HALLOWELL UNIT WORK BENCHES

Multiple unit design enables you to *custom build* these HALLOWELL benches to fit your requirements. Standardized construction permits individual or continuous installations . . . provides interchangeability with other HALLOWELL benches of similar dimensions. Stocked and sold by leading industrial distributors. Write for literature. STANDARD PRESSED STEEL CO., Jenkintown 14, Pa.

3 basic models for your convenience



HALLOWELL SHOP EQUIPMENT DIVISION
sps
JENKINTOWN PENNSYLVANIA

If you write maker identify as IEN - 10609

Guillotine Model 10-A

CUT WIRE ROPE THE FAST EASY WAY

MANCO GUILLOTINE HYDRAULIC CUTTER

In a matter of seconds you can cut up to 1¼" wire rope on the job with the new Manco Guillotine. Develops 22½ tons thrust with easy hand pump action. Available with high speed electric hydraulic pump for production applications. Other models to cut chain or reinforcing rod.

Portable...Easy to Use

A click of the latch opens the anvil. Lay in material to be cut. To lock, raise main body of tool back to vertical. Pumping action makes cut. Positive blade retraction. Wt. 45 lbs.

Write today for Catalog...

Dept. N9

MANCO MFG. CO.
BRADLEY, ILLINOIS

If you write maker identify as IEN - 10610

There's many a slip... but it only takes one to cost money!

PABCO GRIP-TREAD

MASTIPAVE

FLOOR COVERING

Saves Money...Four Ways!

NON-SLIP, SUPER-TOUGH RESILIENT, LOW-COST

These four money-saving ways are why factories, schools, office buildings, hospitals, and Governmental institutions and others specify Pabco Grip-Tread MASTIPAVE...

❶ *Non-Slip* Grip-Tread Mastipave prevents accidents. It's the safe floor with built-in brakes.

❷ *Non-Slip* Grip-Tread Mastipave is super-tough . . . resists wear day-in and day-out. Replacement costs are at a minimum.

❸ *Non-Slip* Grip-Tread Mastipave is resilient, reduces foot fatigue, increases job efficiency.

❹ *Non-Slip* Grip-Tread Mastipave is low cost. Low-cost installation, low-cost maintenance, long wearing qualities. You can't lose—investigate today. Clip the coupon below and learn how you can show a real money value to your company.

FILL OUT THIS COUPON

PABCO PRODUCTS INC.
New York 16 • Chicago 54 • San Francisco 19
(Mail to Dept. B nearest office)

GENTLEMEN: Without cost or obligation to me, please send your folder, "Every Building needs Pabco MASTIPAVE."

NAME _____

ADDRESS _____

CITY _____ STATE _____

If you write maker identify as IEN - 10612

Soldering - Resistance machine applies heat with carbon tipped tool

Source: NEWAGE INTERNATIONAL INC.
235 E. 42nd St., Dept. IEN, New York 17, N. Y.

No skill required

One side of the low voltage heating circuit, from the secondary of a transformer, supplies power in this new Lorsol electric soldering equipment. It connects to a ground plate on which a work piece is positioned. The other side connects to a tool carrying carbon tips at 90 deg. with each other. **Contact** between either of the tips and the work completes the circuit through the ground plate and the lead back to the machine to heat the work and tip to a temperature at which wire solder can be applied. Three sizes of carbon measure 3/16, ¼ and 5/16 in. in diameter. The transformer can be set to deliver six ranges of heat. The low voltage eliminates any danger of electrical shock.

If you write maker identify as IEN - 10613

Circuit Breaker - Steel enclosure protects company's breaker mechanism

Source: I-T-E CIRCUIT BREAKER CO.
1924 Hamilton St., Dept. IEN, Philadelphia 30, Pa.

Meets JIC requirements

New enclosure, with sheet steel sides and back and welded seams, is finished in bonderized enamel and is equipped with a cover to enclose the company's circuit breaker Types E, F, J and L. Ratings are 15 to 600 amp. on 125 to 600-volt ac. or 125 to 250-volt dc. A new operating lever actuates the breaker from outside the enclosure.

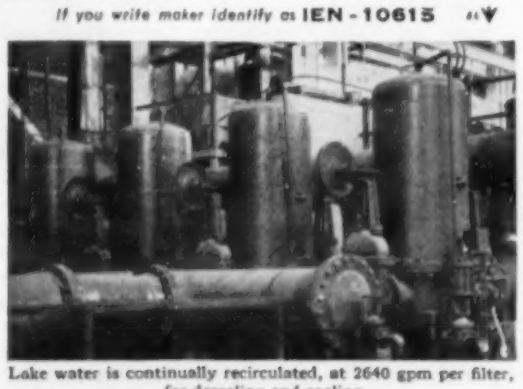
A name plate indicates position of the breaker handle. It can be locked in either "on" or "off" position. A "defeater" arrangement permits authorized personnel to open the enclosure cover with the breaker in "on" position. Provision is made to double lock the handle operating mechanism and the enclosure cover. Neoprene gaskets make a tight seal.

If you write maker identify as IEN - 10614

A new free service, for customers of copper and brass warehousemen, has been established by Copper & Brass Warehouse Association, 1420 New York Ave. N. W., Dept. IEN, Washington 5, D. C. Members of the Association now pool their information on items that are customarily hard to get. If the item exists anywhere in the United States the user should be able to get it in a little more than a week. Under the new arrangement, each local warehouseman has at his disposal the entire stock of every other warehouseman in the country who belongs to the Association.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN - 10615



Lake water is continually recirculated, at 2640 gpm per filter, for descaling and cooling.

Water Shortage?

Cuno Flo-Klean Filter makes raw water suitable for many plant services . . . keeps recirculated water clean . . . is self-cleaning without waste of backwash fluid.

And—for *any* low-viscosity fluid carrying abrasives—install Cuno Flo-Klean. Permanent wire-wound cartridge positively removes all solids larger than spacing specified.*

FREE FLO-KLEAN BULLETIN — Address Cuno Engineering Corp., 693F South Vine St., Meriden, Conn.

*Available spacings from .0025 in. to .020 in.

CUNO

Fluid Conditioning
Removes More Sizes of Solids from More Types of Fluids

If you write maker identify as IEN - 10616

YOU SAVE $$$ WITH

EMBOSSED LABELS

NO DIE CHARGE

FOR PRODUCT IDENTIFICATION

ANY SIZE LABEL
ANY SIZE LETTERS
ANY METAL — INCLUDING STAINLESS STEEL

Raised-letter nameplates to your specifications. Less expensive than comparable etched labels.

Tack-weld, rivet or screw them to your product. Paint or galvanize over them. Wording will remain sharp and clear. Also etched and lithographed labels.

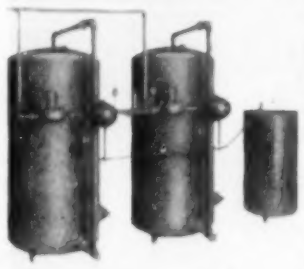
Send Sample or Sketch for Price Quotation
Dept. B

TECH PRODUCTS, INC.
442 Mosel Avenue Staten Island 4, N. Y.

If you write maker identify as IEN - 10617

Designed to Prevent Boiler Scale and Corrosion *ECONOMICALLY*

COCHRANE ZEO-FLO ZEOLITE SOFTENER



Designed for small and medium size plants. Efficiently removes hardness and scale producing calcium and magnesium from water at low operating costs. Provides positive, accurate control of the softening and regeneration cycle. Simple to operate and install. No technical knowledge of the softening process or equipment is required. *Write for Publication 4505-A.*

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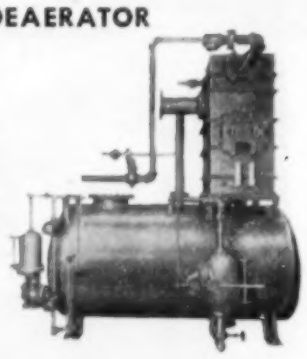
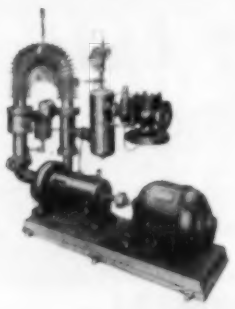


COCHRANE C-B CONDENSATE RETURN SYSTEM



Reduces steam cost to absolute minimum by direct return of condensate from process equipment to boiler at steam temperature.

Automatically eliminates entrained air from circuit.

Steps-up Latent Heat Transfer resulting in Increased Production —Better Product Quality, and Minimum Maintenance.

Several hundred installations in Package Boiler Plants such as Corrugating—Food—Laundry —Rubber—Chemical, etc.— PROVE THIS! *Write for Publication 3250.*

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CORPORATION

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COCHRANE CORPORATION
3152 N. 17th St., Philadelphia 32, Pa.

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(Circle publications desired.)

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COMPANY _____

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CITY _____ STATE _____

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It will guard your investment with its life. Outlasting ordinary pumps many times, NAGLE PUMPS are designed and constructed to withstand abusive service, such as pumping highly abrasive mixtures, corrosive liquids, hot solutions or heavy slurries. Horizontal and vertical shaft types in complete range of sizes.

Type "SW-O" shown, is directly submerged in material to be pumped. Free of packing and bearing troubles. Rendering outstanding service in important processing plants, mines and mills. Get the facts—ask for Bulletin SWO.

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NAGLE PUMPS, INC.
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PUMPS FOR ABRASIVE AND CORROSIVE APPLICATIONS

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NEW CUTLER-HAMMER 9101 TWO-POLE MOTOR SWITCH

Better Control and Protection for All Motors up to 1 HP

Check these features and know the difference: Twin-break solid silver contacts; quick make and quick break. All mechanical operating parts are stainless steel. Famous Cutler-Hammer Eutectic Type thermal overload protection. Free-tripping; contacts cannot be held closed. Resets when switch is thrown to off position. Motor load sensing coils are fully enclosed but front removable; available for 10% loading increments.

Easiest to install and wire; removing wrap-around cover exposes mechanism completely, at front and both sides. Cover secured by single self-retained screw which cannot drop out and become lost. No annoying loose insulating baffle. Straight-through wiring; line terminals at top and load terminals at bottom . . . all clearly marked. Switch mechanism so compact it can be used in ordinary wall switch outlet box with standard toggle switch plate. Ideal for flush mounting on wall, panel or in machine cavity. Your Authorized Cutler-Hammer Distributor stocks both single pole and two-pole models of the new C-H 9101 Motor Switch. Order today and see the difference. CUTLER-HAMMER, Inc., 1378 St. Paul Ave., Milwaukee 1, Wisconsin. Associate: Canadian Cutler-Hammer, Ltd., Toronto.

EASY TO WIRE
Removing wrap-around cover opens switch at front and both sides.

OPEN TYPE 9101
Ideal for flush mounting on wall, on any panel or in a machine cavity.

CUTLER-HAMMER

CUTLER-HAMMER MOTOR CONTROL C-H

If you write maker identify as IEN-10622

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Source: I. O. JOHANSSON COMPANY
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For large work

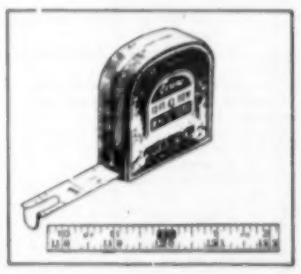
The head in this new Type 8-30 drilling machine is a self-contained unit with a 1-hp. two-speed constant torque motor, a geared transmission for eight spindle speeds between 125 and 1,540 rpm. and a quill mounted spindle carrying a No. 3 Morse taper. Rotating shafts, including the motor, are mounted on ball bearings. The head is vertically adjustable through 4 in. on the box type machine column. Speeds can be selected while the motor is operating. Feed is normally by hand but the machine can be specified with a separate power feed to mount or remove quickly.

Minimum distance, spindle to table is 3½ inches. Maximum is 28 inches. Spindle travel measures 4½ inches. Vertical adjustment of the 15 by 24-in. standard table is through 16 in. on its Acme threaded support screw. A universal 6 by 18-in. layout table or a special 24 by 36-in. table can be specified.

If you write maker identify as IEN-10623

Gage - Flexible steel tape carries inch and foot-and-inch scales

Source: EVANS & COMPANY
410 Trumbull St., Dept. IEN, Elizabeth, N. J.



For direct reading

Dual marking, introduced in IEN-4622-54, has been extended to the company's complete line of steel pocket tapes. One edge of the tape is marked off in inches from 1 to 72, 96, 120 or 144, depending upon the tape length. Calibrations are in 16ths except for the first 6 in. which is marked off in 32nds. The other edge of the tape is marked off in feet and inches with calibrations in 8ths and black-on-white foot markings repeated at each inch mark.

The steel blade is hardened, tempered and bonderized. Black markings appear on a white background. The design includes a removable belt clip, on the largest model, and a transparent Tenite carrying case.

If you write maker identify as IEN-10624

A new masking material, for spray or brush application, can be stripped after a paint finish has been baked over it at 400 deg. F. for 15 minutes. The new material is suited for finishing operations where it is necessary to mask off certain areas prior to applying baking enamels. Data and samples are available on application to Better Finishes & Coatings, Inc., 268 Doremus Ave., Dept. IEN, Newark 5, N. J.

All Makers of These and All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50

If you write maker identify as IEN-10625

A PAID NEWS ADVERTISEMENT BY H. R. WILLIAMS MILL SUPPLY CO.

ZIERS MOTION CONTROL SWITCH

Prevents Breakdowns, Fires, Lost Time

Completely automatic in operation, no plant can afford to be without the protection of these new, dependable, automatic control switches.

ZIERS prevent the losses caused by overloading, jamming and equipment failures. Installed at LOW COST on conveyor systems, assembly lines, shafting equipment, belts, or single equipment units, Ziers Switches react immediately when motion is interrupted. Automatically, power is cut off and alarm signaled before damage to equipment occurs. Ziers Switches are simple to install by your own maintenance crew. No maintenance is required. They function perfectly at temperatures of 40° below zero to 400° above. Made to fit all sizes of shafts and speeds of 30 to 500 rpm. Completely explosion proof.

Why take chances. Write today for literature and LOW PRICES.

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Trowel a smooth, tough, malleable surfacing right over your old concrete or wood floor

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FLOORING • ROOFING • SPECIAL PAINTS
Field Representatives Coast to Coast

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It's easy for a man, without helpers, to pick up and move loads up to 800 pounds. All he does is run truck up to container, hook on at top, and pull back on handle to pick up load. Exclusive Third Wheel Feature assures better balance and safer movement of loads.

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CLEVELAND 3, OHIO

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Sel-Lok Spring Pins are slotted tubular pins that lock by spring action when driven into drilled holes. They eliminate the need to hold close tolerances and perform costly tapping, reaming, peening or milling operations. The chamfered ends make starting easy; the rounded edges of the slot, found only on Sel-Lok Spring Pins, eliminate scoring of holes.

Use Sel-Lok Spring Pins as rivets, hinge pins, keys; to replace tapered, grooved and cotter pins. They are available in a full range of diameters and lengths from .062 x ¼" to .500 x 4". For more information, write to STANDARD PRESSED STEEL CO., Jenkintown 14, Pa.

SEL-LOK SPRING PIN DIVISION **sps**
JENKINTOWN PENNSYLVANIA

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Please send me complete INSTANT-USE information, details of TRIAL ORDER PLAN and HAND BOOK OF BUILDING MAINTENANCE — no obligation. (Clip and attach Coupon to Co. letterhead).

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Title .....
Company .....
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ANSWERS TO YOUR PUMP PROBLEMS

These New TUTHILL Catalogs Give You Complete Data on Pumps for LUBRICATION, HYDRAULIC, COOLANT, TRANSFER and BURNING OILS Service.

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Tuthill pumps are of the rotary, internal-gear, positive displacement type.

Any one or more of these Tuthill catalogs are available on request. They include individual pump guides to help you select the Tuthill pump best-suited to your requirements. Please ask for catalogs by number.

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Dependable Rotary Pumps since 1927
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Canadian Affiliate—Ingersoll Machine & Tool Co., Ltd.
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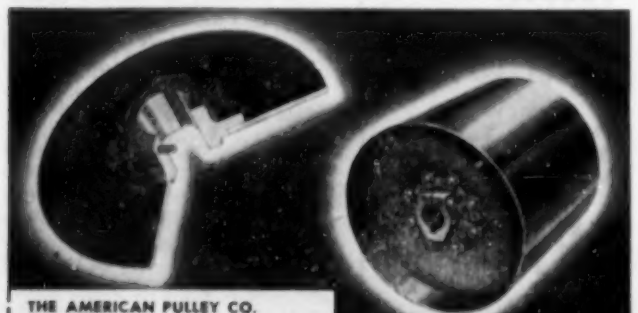

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Philadelphia 29, Pa.

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Power Transmission by AMERICAN PULLEY COMPANY

At the Profit End of the Machine

SEPTEMBER 1954

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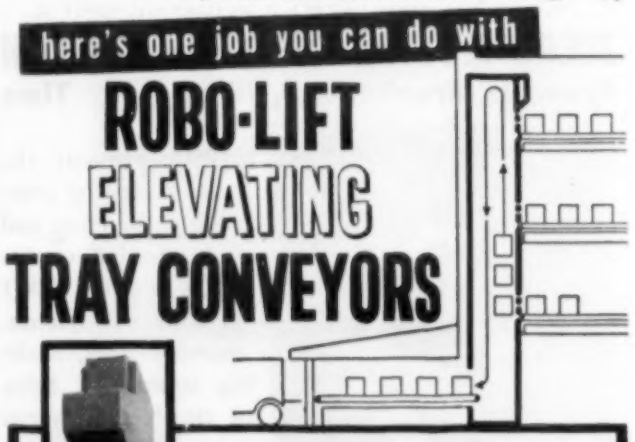
here's one job you can do with

ROBO-LIFT ELEVATING TRAY CONVEYORS



Hard-to-manage multi-story handling jobs are simplified—costly hand operations are reduced—and rough handling damage and waste are eliminated—when you install a Robo-Lift on your production line. That's because Robo-Lift provides:

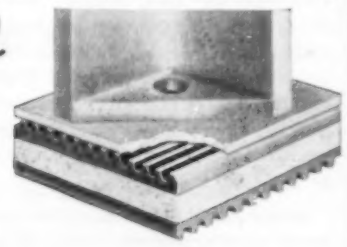
- Vertical or near-vertical elevating or lowering
- Horizontally maintained trays
- Vertical-to-horizontal or horizontal-to-vertical changes without transfer
- Pick-up and discharge at various selected levels
- Accommodation of various sizes in one unit
- Minimum clearance and space requirements
- Manual or automatic in-feed
- Useful space expansion

Robo-Lift's many desirable advantages undoubtedly suggest uses in your operation. Please request details and specifications on your letterhead.

Counsel MACHINE COMPANY INC
8 HATHAWAY ST.
WALLINGTON, N. J.

If you write maker identify as IEN - 10633

Eliminate Bolting Costs!



with

KORFUND VPS Elasto-Rib Damper

Since the cost of Korfund VPS is less than the cost of bolting down equipment such as machine tools, punch presses, air conditioning equipment, engines and printing presses, the excellent vibration and noise control provided is really given as a bonus. The VPS Damper pays for itself immediately.

New Korfund VPS Elasto-Rib Damper is furnished with a non-skid load distributing top plate permanently fastened to time-proven Elasto-Rib. Since it is installed in most cases by merely placing it under the machine legs, quick rearrangements of production lines are possible without expensive "downtime" delays. The VPS Damper prevents machine "walking" or "creeping", and provides excellent vibration and noise control.

Write for Bulletin 19 which gives full details.

THE KORFUND CO., INC.

KORFUND VIBRATION CONTROL — SPRINGS — RUBBER — CORK

48-35 E. Thirty Second Place, Long Island City 1, N. Y.
In Canada: 510 Canal Bank, Ville St. Pierre, Montreal

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If you write maker identify as IEN-10636

NEW! VALVAIR SPEED KING SOLENOID PILOT OPERATED CONTROL VALVES

The New Valvair Speed King line is complete — 3-way, 4-way, 4-way-5-port (2-pressure), foot-mounted or sub-base manifold mounted; pipe sizes — ¼", ⅜", ½", ¾", 1". A precedent-breaker in size, weight, speed and endurance. Get all the facts!

VALVAIR CORPORATION Affiliate: Sinclair-Collins Valve Company 949 Beardsley Ave., Akron 11, Ohio

REPRESENTATIVES IN PRINCIPAL CITIES

Rely Upon Valvair DIVERSATILITY

Ask for Bulletin "Q9"

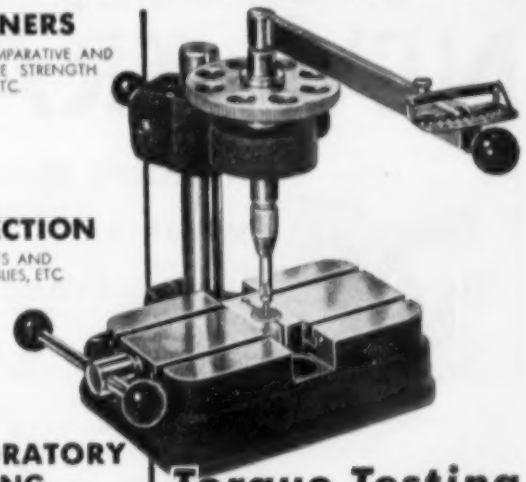
If you write maker identify as IEN-10637

DESIGNERS for COMPARATIVE AND ULTIMATE STRENGTH TESTS, ETC.

INSPECTION of PARTS AND ASSEMBLIES, ETC.

LABORATORY TESTING of SCREWS, SOCKETS, TAPS, LOCK NUTS, DRIVING BITS, HAIR SPRINGS, ETC.

PRODUCTION QUALITY CONTROL for DELICATE OPERATIONS, ASSEMBLY OF FRAGILE MECHANISMS OR INSTRUMENTS, FOR FASTENERS IN PLASTICS AND LIGHT METALS.



Torque Testing FIXTURE

A universal fixture with 1000 uses. Holds driver in accurate alignment; in instrument bearings. Provides rapid engagement with test sample...torque is applied and measured with Sturtevant Torque Wrench.

Model TTF¼ Capacity 0-200 in. lbs.
Model TTF½ Capacity 0-150 ft. lbs.

Write for Bulletin TF

P.A. STURTEVANT CO. ADDISON QUALITY ILLINOIS

If you write maker identify as IEN-10634

ONE CONTROL DOES THE JOB OF TWO

DA-400

Available with Explosion-Proof or Weatherproof Housing

Mercoid DA-400 Series Pressure Controls incorporate a single bourdon tube which actuates two independently adjustable Mercoid magnet operated mercury switches to accomplish various circuit operations. For example:

1. Close one alarm circuit at high pressure and another at low pressure with both circuits open over operating range.
2. As an electrical interlock to open one circuit as pressure rises above and the second circuit as the pressure drops below operating range.
3. To provide two-stage control by opening or closing one circuit on a rise in pressure and the second circuit on a further rise in pressure.

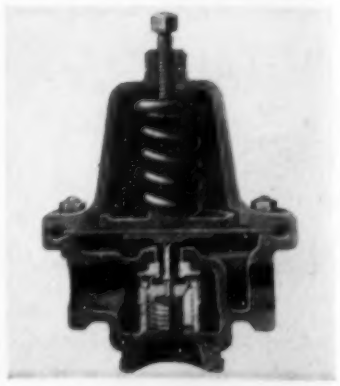
Equipped with calibrated dial and outside adjustments—Ranges 0-30 psi to 300-2500 psi—The Mercoid magnet operated mercury switches are not affected by harmful effects of dust, dirt, or corrosion—your assurance of millions of operations.

Write for Bulletin 5P

THE MERCOID CORPORATION 4201 BELMONT AVE., CHICAGO 41, ILLINOIS, U.S.A.

If you write maker identify as IEN-10635

RUBBER DIAPHRAGM PRESSURE REGULATOR FOR AIR OR WATER SERVICE



Particularly suitable where moderate original cost is necessary without sacrificing dependability or accuracy. CASH STANDARD Type Y Pressure Regulators maintain a constant reduced pressure regardless of fluctuating initial pressure or intermittent demand. These exceptionally sturdy valves are supplied with a spring-loaded rubber diaphragm and are available in sizes ¼ to 1 inch. They normally come with iron or bronze body, bronze trim, for air or water service. For air service: Highest initial pressure 250 lbs.; highest delivery pressure 125 lbs. For water service: Highest initial pressure 300 lbs.; highest delivery pressure 125 lbs.

Complete information in Bulletin No. 949

A. W. CASH COMPANY

P. O. Box 551 • Decatur, Illinois

If you write maker identify as IEN-10638

NEW "DOUBLE-DUTY" INDUSTRIAL FLOORING

STONHARD

STONCAP

ONLY ¼" NEEDED

STONCAP is a new material for repairs to concrete or wood floors ruined by excessive grease, oil and other destructive agents. No special skill—no expensive tools needed! A durable overlay can be placed one day and used the next morning. In color! No chipping no primer needed! At ¼ inch you have the toughest, most resilient surface ever developed. What's more, all ingredients come complete—nothing else to buy! Write for full details.

STONHARD COMPANY
Building Maintenance Materials Since 1922
102 Stonhard Bldg., 1306 Spring Garden St., Philadelphia 23, Pa.

Please send me your free STONCAP Booklet: 102/9/54
Name .....
Company ..... Title .....
Address .....
City ..... Zone ..... State .....

If you write maker identify as IEN-10639

Big News from Stearns for makers and users of FHP motors

NOW! FOR THE FIRST TIME—MAGNETIC DISC BRAKES FOR MOTORS FROM 1/20 TO 1/3 HP. Stearns New 40 Series Brake*

- Meets new NEMA frame standards in the 1/20 to 1/3 hp. range.
- Only 5 in. in diameter, less than 3½ in. long.
- Has torque range of from 6 lb. in. to 1 lb. ft.
- Mounts on Standard NEMA C end bell for motor frames 42-C and 48-C.
- Extends advantages of magnetic disc brakes to wide range of small motor applications.

NEW! MAGNETIC DISC BRAKES FOR RE-RATED MOTORS — 1/6 TO 2 HP. Stearns New 50 Series Brake*

- Meets new NEMA frame standards in ⅙ hp. to 2 hp. range.
- Is available in four torque ratings, 1½, 3, 6, 9 lb. ft., mounts on fractional hp. motor frames 56-C and 66-C — integral hp. motor frames 182, 184.
- Takes less than one-half space previously required.

*Patent No. 2620901 — 12-9-52

Write today for new descriptive literature. 1077

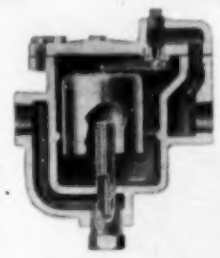
MAGNETIC EQUIPMENT FOR ALL INDUSTRY

STEARNS MAGNETS

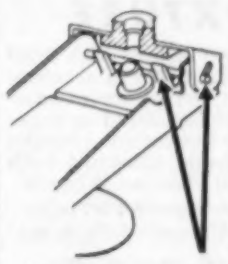
STEARNS MAGNETIC, INC.
626 South 28th Street, Milwaukee 46, Wisconsin

If you write maker identify as IEN-10640

NEW TRAP



Sarco *Camlift* Bucket Trap



Cams lever valve off seat; slot and pin provide maximum valve opening

handles more volume in less time!

Sarco uses the principle of the fulcrum and lever in this newly designed trap, and gives you greater discharge at no increase in trap size. Result: more for your steam trap dollar.

It's all made possible by the Sarco *Camlift* valve mechanism which provides the force needed to open the large valve without a corresponding increase in trap size.

See for yourself how this small inverted bucket trap gives you maximum capacity.

Write for free trial trap giving pipe size, capacity, and pressure conditions.

SARCO COMPANY, INC.
EMPIRE STATE BUILDING, N. Y. 1, N. Y.

If you write maker identify as IEN-10641

See where B&D Hammers save you time and money!

From drilling in concrete and lagging-down machines to chiseling castings and holing-through walls, B&D Electric Hammers get more jobs done faster, better, cheaper!

New Book Shows How!

Get this great B&D Hammer How-To-Do-It Book *Free!* Page after page of on-the-job photos show how you can save time, cut costs on dozens of jobs in your operation! Write to THE BLACK & DECKER MFG. Co., Dept. 608 Towson 4, Md.

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS

For nearest distributor, see "Tools-Electric."

An IEN reader is waiting for an answer to each item in this column.

This column concentrates upon reader request for information on sources of supply for products or services or technical advice which we ourselves cannot supply, advises you of new patent-protected products for your possible manufacture, and available surplus of specialized products. It does not include items having to do with selling or sales representation.

It is published to invite your suggestions and comments, which are forwarded immediately to the originator, just as we will be happy to publish similar problems for you.

BUFFING . . "I wish we had a source for a used semi-automatic buffing machine with 8 or more spindles, each motorized to polish cylindrical forms such as tumblers." **IEN W-91**

ENGINEER . . "I wish I had contact with an organization desiring the permanent services of a design engineer with 10 years of experience in product and machine design, major layout and plant engineering. I would prefer to locate in the Western States but am open to consider any location that offers permanent interesting employment." **IEN W-92**

ENGINEERS . . "I wish I had a job leading to a responsible position in industry. My little wife wishes she had one also. We are both graduates of Massachusetts Institute of Technology. She is a Bachelor of Science, as of 1954, in Economics and Mechanical Engineering, although she does not look it. I have the same Degree, dated 1951, in Economics and Chemical Engineering. Her ambition is to become a consultant and technical writer in mechanical design and quality control. I want to establish a career in industrial management by starting in production or industrial engineering or sales. She does not wish to be a mathematician and I do not want to begin in accounting. We would like to work for the same employer or in plants close enough so we can go home together when the work day ends. We are ready to go to work anywhere on 30 days notice. We are at present in Boston." **IEN W-93**

SURPLUS . . "I wish we had a buyer for a Chandeysson 16 oz. injection molding machine that we have used for the past two years in experimental work. We will be glad to send a copy of the complete specifications and data on equipment included upon request. The machine is located in Scranton, Penna." **IEN W-95**

PLEASE WATCH FOR YOURS

A return post card is being mailed to each of the readers of IEN during the next few months. It is intended for your use to make sure you want to remain on our mailing list. Please watch for it.

OK or correct your name and address as they appear on the card. Please also check the questions that are asked there. They are simple, self-explanatory, and essential to our circulation audit.

If you write maker identify as IEN-10642

HOW TO SAVE COST OF TALL STACK

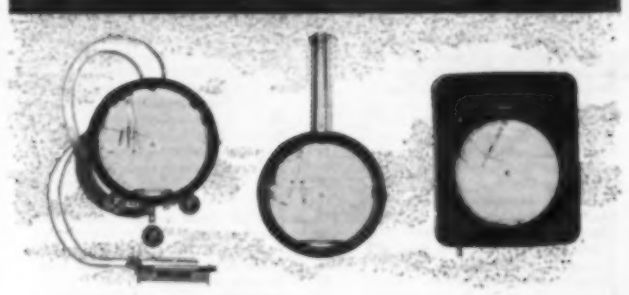
Avoid the cost of a tall stack by installing an Induced Draft Bifurcator Fan for controlled boiler draft in any weather. Induced Draft Bifurcator is an axial-flow fan in a divided housing. Flue gases are by-passed (bifurcated) around motor chamber so that motor stays cool, clean and accessible. Easily installed at any angle, like a flanged section of breeching. For high-pressure boilers delivering up to 60,000 pounds of steam per hour and for low-pressure boilers rated up to 190,000 EDR. Send for free catalog. Address Dept. N-954.

DeBothezat Fans
Division of American Machine and Metals, Inc.
EAST MOLINE, ILLINOIS

If you write maker identify as IEN-10643

WIDEST RANGE OF EQUIPMENT FOR

HUMIDITY RECORDING



No matter what problems you face in obtaining suitable humidity measurements and records, the unique versatility of Foxboro Humidity Instrumentation offers an appropriate solution. Included are Recorders, Recorder-Controllers, Indicators, for relative humidity (hygroscopic type), wet-and-dry bulb measurements, and for direct reading dewpoint or absolute humidity measurement (with the exclusive Dewcel element). Available in portable, close-coupled and long-distance types; with round or rectangular cases.

Write for full details in Bulletins 188-5 and 407. **The Foxboro Company, 429 Neponset Ave., Foxboro, Mass., U.S.A.**

FOXBORO HUMIDITY INSTRUMENTS

If you write maker identify as IEN-10644

A PAID NEWS ADVERTISEMENT BY FARRELLOY COMPANY

POWDERED METAL REPAIRS damaged galvanizing

To meet the need for restoring damaged galvanizing, especially that destroyed by welding, Farco Brand Z was developed to meet government specifications. This powdered metal containing flux has withstood 800 hours in a 20 per cent salt spray bath without rusting.

Farco Brand Z will actually remove scale from black iron, penetrate rust and grease, and deposit a zinc alloy coating. It does not leave a line of demarcation but amalgamates with galvanizing. It may be applied in flat, vertical and overhead positions, binding more tightly than hot dipped and will not flake off.

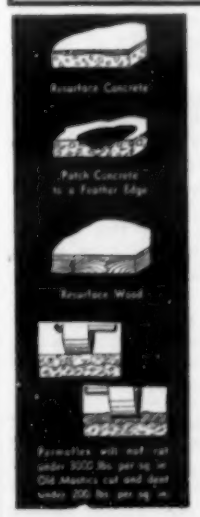
Powerful flux causes the metallic content to coat any metal including Copper, Stainless Steel, Monel Bronze, Nickel, Chromium and Evanohm.

Being completely stable, it does not pick up moisture or deteriorate in can.

Farco Brand Z is available in 2 lb. cans at $3.00 each, 10% discount on six can lots, fob **Farrelloy Company,** 1249 N. 26th St., Philadelphia 21, Pa.

If you write maker identify as IEN-10645

NEW FLOORS In 24 Hours



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